No. 80-231

FILED
NOV 20 1980
MICHAEL RODAK, JR., CLERK

In The

Supreme Court of the United States

October Term, 1980

CECIL D. ANDRUS, SECRETARY OF THE INTERIOR, ET AL.,

Appellants,

v.

STATE OF INDIANA, ET AL.,

Appellees.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA

JOINT APPENDIX

WADE H. McCREE, JR.
Solicitor General
JAMES W. MOORMAN
Assistant Attorney General
LOUIS F. CLAIBORNE
Deputy Solicitor General
PETER BUSCEMI
Assistant to the Solicitor General
PETER R. STEENLAND, JR.
MICHAEL A. McCORD
Attorneys
Department of Justice
Washington, D.C. 20530
(202) 633-2217

THEODORE L. SENDAK
Attorney General
State of Indiana
JACK R. O'NEILL
Deputy Attorney General
State of Indiana
219 State House
Indianapolis, Indiana 46204
(317) 232-6357

For State of Indiana, Otis R. Bowen, M.D., Governor, Indiana Department of Natural Resources, and Joseph D. Cloud, Director.

HARRY T. ICE
G. DANIEL KELLEY, JR.
BYRON L. MYERS
111 Monument Circle
Indianapolis, Indiana 46204
(317) 635-1213

For Indiana Coal Association, Meadowlark Farms, Inc., AMAX Coal Company, a Division of AMAX Inc., Peabody Coal Company, and John A. Conlon.

Midwest Law Printing Co., Chicago 60601, FInancial 6-3988

TABLE OF CONTENTS

DOCKET ENTRIES

PAGE

State of Indiana, et al. v. Cecil D. Andrus, et al., No. IP 78-500-C 1

Indiana Coal Association, et al. v. United States, et al., No. IP 78-501-C 7

PLEADINGS

Complaint, State of Indiana, et al. v. Cecil D. Andrus, et al., No. IP 78-500-C 13

Complaint, Indiana Coal Association, et al. v. United States, et al., No. IP 78-501-C 24

Motion for Preliminary Injunction 36

Joint Petition For Expedited Trial And Decision And Stipulation As To Procedure 48

EVIDENCE

Plaintiffs' [Appellees'] Exhibits:

Exhibit No. 3 to Deposition of R. Neil Sampson — Report Of The Interagency Task Force On The Issue Of A Moratorium Or A Ban On Mining In Prime Agricultural Lands 51

Exhibit 1, Map of Illinois Coal Basin 65

Exhibit 2, Map of Surface Mineable Reserves and Prime Farmland 66

Exhibit 3, Map of Underground Mineable Reserves 67

Exhibit 4, Map of Prime Farmland 68

Exhibit 5, Affidavit of Charles E. Wier 69

Exhibit 6, Affidavit of Robert L. Major 72

Exhibit 11, Affidavit of Gilbert S. Graves 76

Exhibit 12, Affidavit of William M. Kester, Jr. 77
Exhibit 13, Affidavit of Ralph E. Clark 81
Exhibit 14, Plaintiffs' Request for Admissions 83
Exhibit 20, Affidavit of Loyd R. Jones 95
Exhibit 40, Review of Reclamation Plans 98
Exhibit 41, Affidavit of William Richard Byrnes .. 101
Exhibit 45, Minutes of Indiana Stream Pollution Control Board 102

Defendants' [Appellants'] Exhibits:
Report of 208 Water Quality Program 104
Exhibit A, Affidavit of Donald F. Smith 105
Reference 1, Article by David P. Bernard 112
Exhibit B, Affidavit of Donald E. McCormack 121
Exhibit C, Affidavit of Raymond I. Dideriksen 123
Exhibit F, Affidavit of Edgar A. Imhoff 127
Exhibit G, Affidavit of Elvin V. Wickline 129
Exhibit H, Affidavit of Allen O. Perry 130

Transcript of Hearing Held on April 18, 1979:
Testimony of Dr. William W. McFee 133
Testimony of Alten F. Grandt 138
Testimony of Glenn L. Kaffenberger 145
Testimony of Ronald L. Lewis 148
Testimony of Elvin V. Wickline 153
Testimony of Donald E. McCormack 155

No. 80-231

In The

Supreme Court of the United States

October Term, 1980

CECIL D. ANDRUS, SECRETARY OF THE INTERIOR, ET AL.,

Appellants,

v.

STATE OF INDIANA, ET AL.,

Appellees.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF INDIANA

JOINT APPENDIX

DOCKET ENTRIES

State of Indiana, et al. v. Cecil D. Andrus, et al.,
No. IP 78-500-C

Date	*Proceedings*
8/16/78	Complaint filed. Summons issued. Cover sheet filed.
8/16/78	Joint Motion for Consolidation filed.
8/17/79	Plaintiff fiels (sic) Moton (sic) for leave to amend by interlineation; c/s.
8/29/78	U.S. Marshals return-Summons & Complaint & Motion served on the U.S. Dept. of Interior by certified mail on 8/17/78. Served on Walter J. Heine, Dir. of the Office of Surface Mining by certified mail on 8/17/78. Served on the Office of Surface Mining Reclamation & Enforcement by certified mail on 8/17/78. Served on Cecil Andrus, Sec. of the U.S. Dept. of Interior by certified mail on 8/17/78. Served on Griffin B. Bell by certified mail on 8/17/78. Served on Virginia D. McCarty, U.S. Atty. on 8/17/78. Fee $56.00.
9/6/78	Court enters order of consolidation with Cause Number: IP78-501-C and the causes are consolidated for all purposes and on all issues under Civil Cause Number: IP78-500-C.
9/6/78	Court GRANTS plaintiff's motion for leave to amend their complaint by interlineation. Paragraph 28, line 3, page 5, should be amended to read August 3, 1977 instead of August 30, 1977.
10/13/78	Defendants file motion for enlargement of time, c/s.
10/16/78	Court grants an extension of time to defendant to answer or otherwise plead. Time extended to and including November 15, 1978.

Date	*Proceedings*
11/15/78	Defendants file motion for enlargement of time, c/s.
11/16/78	Court grants the defendants' motion for extension of time to plead to the plaintiffs' complaint, time is now extended to and including November 22, 1978. (S.E.)
11/22/78	Government files Motion to Dismiss.
12/7/78	Plaintiffs file motion for extension of time to file answer brief on motion to dismiss. c/s
12/11/78	Plaintiff files motion for enlargement of time, c/s.
12/12/78	Court grants the plaintiffs motion for extension of time to file answer brief to the defendants motion to dismiss, time is now extended to and including Jan 7, 1979 (S.E.)
12/14/78	Court grants the State of Indiana's motion for extension of time to respond to the defendants motion to dismiss, time is now extended to and including Jan 15, 1979 (S.E.)
1/8/79	Motion of Plaintiffs, Indiana Coal Association, Meadowlark Farms, Inc., Amax Coal Company, Peabody Coal Company and John A. Conlon for further extension of time to file brief in opposition to motion to dismiss c/s.
1/11/79	Plaintiff files Motion for enlargement of time; c/s.
1/11/79	Court grants the plaintiff's moiton (sic) for extension of time to file answer brief to the defendants motion to dismiss, time is now extended to and including Jan 17, 1979 (S.E.)
1/15/79	Notice of taking deposition of Richard M. McNabb filed; c/s.
1/17/79	State's Response to Federal Defendant's Motion to Dismiss; c/s.

Date *Proceedings*

1/18/79—Brief of plaintiffs, Indiana Coal Association, Peabody Coal Company, Amax Coal Company, Meadowlark Farms, Inc. and John A. Conlon, in opposition to the Motion to Dismiss; c/s

1/15/79—Court grants the State of Indiana's motion for extension of time to respond to the defendants motion to dismiss, time is now extended to and including January 17, 1979. (S.E.)

1/22/79—Defendant files motion for stay of discovery pending a ruling on defendants' motion to dismiss, c/s.

1/23/79—Court grants the Governments motion to stay discovery until the Court has ruled on the motion to dismiss. (S.E.)

1/26/79—State of Indiana's Motion to reconsider order granting defendant's Motion for stay of discovery; c/s

2/6/79—Defendant files answer in opposition to State of Indiana's motion to reconsider order granting defendants' motion for stay of discovery with memorandum in support thereof, c/s.

2/8/79—Motion of plaintiffs, Indiana Coal Assoc., Amax, Peabody and Conlon for the court to reconsider its order granting defendants' motion for a stay of discovery, c/s.

3/9/79—Plaintiffs file pleadings:

1) Motion for Preliminary Injunction; c/s
2) Plaintiffs' request for admissions; c/s
3) Plaintiffs' affidavits and exhibits in support of Motion for Preliminary Injunction and in opposition to defendants' Motion to Dismiss

3/12/79—Plaintiffs file pleadings:

1) Request for court to require defendants to respond to request for admissions within ten days; c/s.

Date *Proceedings*

2) Request for immediate hearing on motion for preliminary injunction; c/s.

3/13/79—Plaintiffs, Indiana Coal Association, et al files pleadings:

1) Plaintiffs' Indiana Coal Association, Peabody Coal Company, Amax Coal Company, Meadowlark Farms, Inc. and John A. Conlon, Motion for court to consider extra-pleading matters and to treat defendants' motion to dismiss as a motion for summary judgment;
2) Reply Memorandum in support of defendant's Motion to Dismiss; c/s.

3/27/79—Defendants by counsel filed Motion for enlargement of time; c/s.

3/27/79—Court grants the defendant's motion for extension of time to respond to the plaintiff's pleadings, time is now extended to and including April 16, 1979. (S.E.)

4/3/79—Plaintiff Indiana Coal Assoc. et al files pleadings:

1) Notice of deposition, c/s.
2) Brief in support of motion for preliminary injunction and in reply to defendant's reply brief in support of motion to dismiss, c/s.

4/12/79—Defendants files Motion for enlargement of time; c/s.

4/17/79—Deposition of *R. NEIL SAMPSON* filed.

4/13/79—Court grants the Governments motion for extension of time to respond to the plaintiffs pleadings, time is now extended to and including May 1, 1979. (S.E.)

4/17/79—Memorandum in opposition to plaintiffs' motion for preliminary relief and in support of defend-

Date	*Proceedings*
	ants' motion to dismiss filed by defendants, c/s.
4/17/79—	Defendant files response to request for admissions, c/s.
4/18/79—	Affidavits of Dan Lynn Rumbly and Randy E. Staley.
5/4/79—	State's Post-Hearing Brief filed; c/s.
5/4/79—	Defendants' Post-Trial brief; c/s
5/4/79—	Defendants file Motion for leave to offer additional exhibits and evidence; c/s
5/4/79—	Post-Hearing Brief in support of plaintifffs' (sic) Motion for Preliminary Injunction; c/s.
8/21/79—	Supplement to Motion to Dismiss filed by Federal Defendants, c/s
2/27/80—	Joint petition for expedited trial and decision and stipulation as to procedure filed by the Parties. Court files order on joint petition for expedited trial and decision and stipulation as to procedure. (S.E.) Court now set argument on this matter for 10:00 A.M. April 24, 1980.
3/14/80—	Plaintiff files trial brief on the merits, c/s.
4/3/80—	Defendants file trial brief on the merits, c/s.
4/9/80—	Plaintiff files joint motion for enlargement of time, c/s.
4/11/80—	Court now Grants the plaintiffs' motion for extension of time to file their reply briefs to and including April 21, 1980.
4/18/80—	Plaintiff files reply trial brief on the merits, c/s.
6/6/80—	Plaintiffs file motion to withdraw an issue, c/s.
6/10/80—	Court now grants the plaintiff's motion to withdraw an issue.

Date	*Proceedings*
6/10/80—	Court files Order and Judgment finding for the plaintiffs and against defendants. (SE.) Court files Memorandum of decision. Case Closed. Entered June 11, 1980. O.B. Vol. 26—Page 304.
6/16/80—	Federal defendants file notice of appeal to the Supreme Court of the United States from the final order and judgment entered in this action on June 10, 1980. Copy of the notice sent to the counsel of record and the court reporter. Copy of the notice of appeal, docket entries, Application for a stay of order and copy of the judgment sent to the Supreme Court. Application for a stay of order filed, c/s.
6/18/80—	Plaintiff files motion for time to respond to defendants' motion to stay, c/s.
6/18/80—	Court now Grants the plaintiffs' motion for extension of time to respond to the defendants' motion to stay.
6/23/80—	Plaintiff files memorandum in opposition to motion to stay, c/s.
6/24/80—	Plaintiff files submission of exhibit A, c/s.
6/25/80—	Court now Denies application of federal defendants for a stay of the June 10, 1980 order of this court.
7/2/80—	Official Reporter's transcript of argument on merits filed.
7/7/80—	Certified copy of Order from Supreme Court filed. Judgment of district court stayed pending the filing and disposition of appeal by Supreme Court.
10/10/80—	Certified copy of order from Supreme Court filed, and probable jurisdiction is noted.

Indiana Coal Association, et al. v. United States, et al., No. IP 78-501-C

Date	*Proceedings*
8/16/78	Complaint filed. Summons issued. Cover sheet filed.
8/16/78	Joint Motion for Consolidation filed.
8/29/78	U.S. Marshals return-Summons, Complaint & Motion served on U.S. Dept. of the Interior by certified mail on 8/17/78. Served on Walter J. Heine, Director of the Office of Surface Mining Reclamation & Enforcement by certified mail on 8/17/78. Served on the Office of Surface Mining Reclamation & Enforcement by certified mail on 8/17/78. Served on Cecil D. Andrus, Sec. of the U.S. Dept. of the Interior by certified mail on 8/17/78. Served on the U.S. Atty. General by certified mail on 8/22/78. Fee $35.00
9/6/78	Court enters order of consolidation with Cause Number: IP78-500-C and the causes are consolidated for all purposes and on all issues under Civil Cause Number: IP78-500-C.
11/22/78	Government files Motion to dismiss
12/7/78	Plaintiffs files motion for extension of time to file answer brief on motion to dismiss. c/s
12/11/79	Plaintiff files motion for enlargement of time, c/s.
12/12/78	Court grants the plaintiffs motion for extension of time to file answer brief to the defendants motion ot (sic) dismiss, time is now extended to and including Jan 7, 1979. (S.E.)
12/14/78	Court grants the State of Indianas' (sic) motion for extension of time to respond to the defendants motion to dismiss, time is now extended to and including Jan 15, 1979 (S.E.)

Date	*Proceedings*
1/8/79—	Motion by plaintiffs, Indiana Coal Association, Meadowlark Farms, Inc., Amax Coal Company, Peabody Coal Company and John A. Conlon for further extension of time to file brief in opposition to motion to dismiss; c/s.
1/11/79—	Plaintiff files Motion for enlargement of time; c/s.
1/11/79—	Court grants the plaintiff's moiton (sic) for extension of time to file answer brief to the defendants motion to dismiss, time is now extended to and including Jan 17, 1979 (S.E.)
1/18/79—	Brief of plaintiffs, Indiana Coal Association, Peabody Coal Company, Amax Coal Company, Meadowlark Farms, Inc. and John A. Conlon, in opposition to the Motion to Dismiss; c/s.
1/15/79—	Court grants the State of Indiana's motion for extension of time to respond to the defendant's motion to dismiss, time is now extended to and including January 17, 1979. (S.E.)
1/22/79—	Defendant files motion for stay of discovery pending a ruling on defendants' motion to dismiss, c/s.
1/23/79—	Court grants the Governments motion to stay discovery until the Court has ruled on the motion to dismiss. (S.E.)
1/26/79—	State of Indiana's Motion to reconsider order granting defendants motion for stay of discovery; c/s
2/6/79—	Defendant files answer in opposition to State of Indiana's motion to reconsider order granting defendants' motion for stay of discovery with memorandum in support thereof, c/s.
2/8/79—	Motion of plaintiffs, Ind. Coal Assoc., Amax, Peabody, and Conlon for the court to recon-

Date *Proceedings*

sider its order granting defendants' motion for a stay of discovery filed, c/s.

3/9/78—Plaintiffs file pleadings:
1) Plaintiffs' request for admissions; c/s
2) Motion for preliminary injunction; c/s
3) Plaintiffs' Affidavits and exhibits in support of motion for preliminary injunction and in opposition to defendants' Motion to dismiss.

3/12/79—Plaintiffs file pleadings:
1) Request for court to require defendants to respond to request for admissions within ten days; c/s.
2) Request for immediate hearing on motion for preliminary injunction; c/s.

3/13/79—Plaintiffs, Indiana Coal Association, et al. files pleadings:
1) Plaintiffs' Indiana Coal Association, Peabody Coal Company, Amax Coal Company, Meadowlark Farms, Inc. and John A. Conlon, Motion for court to consider extra-pleading matters and to treat defendants' motion to dismiss as a motion for summary judgment; c/s.
2) Reply Memorandum in support of defendant's Motion to Dismiss; c/s.

3/27/79—Defendants file Moiton (sic) for enlargement of time; c/s.

3/27/79—Court grants the defendants motion for extension of time to respond to the plaintiffs pleadings, time is now extended to and including April 16, 1979. (S.E.).

4/3/79—Plaintiff Indiana Coal Assoc. et al files pleadings:
1) Notice of deposition, c/s.

Date *Proceedings*

2) Brief in support of motion for preliminary injunction and in reply to defendant's reply brief in support of motion to dismiss, c/s.

4/12/79—Defendants file Motion for enlargement of time; c/s.

4/17/79—Deposition of *R. NEIL SAMPSON* filed.

4/13/79—Court grants the Governments motion for extension of time to respond to the plaintiff's pleadings, time is now extended to and including May 1, 1979. (S.E.)

4/17/79—Defendants file pleadings:

1) Memorandum in opposition to plaintiffs' motion for preliminary relief and in support of defendants' motion to dismiss filed, c/s.
2) Response to request for admissions, c/s.

4/18/79—Affidavits of Dan Lynn Rumbly and Randy E. Staley filed.

5/4/79—State's Post-Trial Brief filed; c/s.

5/4/79—Defendants' Post-Trial Brief filed; c/s.

5/4/79—Defendants file Motion for leave to offer additional exhibits and evidence; c/s.

5/4/79—Post-Hearing Brief in support of plaintiffs' Motion for Preliminary Injunction; c/s.

8/21/79—Supplement to Motion to Dismiss filed by Federal Defendants.

2/27/80—Joint petition for expedited trial and decision and stipulation as to procedure filed by the Parties. Court files order on joint petition for expedited trial and decision and stipulation as to procedure. (S.E.) Court now sets argument on this matter for 10:00 A.M. April 24, 1980.

Date *Proceedings*

3/14/80—Plaintiffs' trial brief on the merits filed, c/s.

4/3/80—Defendants file trial brief on the merits, c/s.

4/9/80—Plaintiffs file joint motion for enlargement of time, c/s.

4/11/80—Court now Grants the plaintiffs' motion for extension of time to file their reply briefs to and including April 21, 1980.

4/18/80—Plaintiff files reply trial brief on the merits, c/s.

6/6/80—Plaintiffs file motion to withdraw an issue, c/s.

6/10/80—Court now grants the plaintiff's motion to withdraw an issue.

6/10/80—Court files Order and Judgment finding for the plaintiffs and against the defendants. (S.E.) Court files memorandum of decision. Case Closed. Entered June 11, 1980. O.B. Vol. 26—P. 304.

6/16/80—Federal defendants file notice of appeal to the Supreme Court of the United States from the final order and judgment entered in this action on June 10, 1980. Application for a stay of order filed, c/s. Copy of notice went to the counsel of record and court reporter. Copy of the notice of appeal, docket entries, application for a stay of order and copy of the judgment sent to the Supreme Court.

6/18/80—Plaintiff files motion for time to respond to defendants' motion to stay, c/s.

6/18/80—Court now Grants the plaintiffs' motion for extension of time to respond to the defendants' motion to stay.

6/23/80—Plaintiff files memorandum in opposition to motion to stay, c/s.

Date	*Proceedings*
6/24/80	Plaintiffs file submission of exhibit A, c/s.
6/25/80	Court now Denies application of federal defendants for a stay of the June 10, 1980 order of this court.
7/2/80	Official reporter's transcript of argument on merits filed.
7/7/80	Certified copy of order from Supreme Court filed. Judgment of district court stayed pending the filing and disposition of appeal by Supreme Court.
10/10/80	Certified copy of order from Supreme Court filed, and probable jurisdiction is noted.

PLEADINGS

State of Indiana, et al. v. Cecil D. Andrus, et al.
No. IP 78-500-C

COMPLAINT

The Plaintiffs, State of Indiana; Otis R. Bowen, M.D., Governor of the State of Indiana; Joseph D. Cloud, Director of the Indiana Department of Natural Resources; and the Indiana Department of Natural Resources, for their claim for relief against the Defendants, allege and say:

Jurisdiction

1. Jurisdiction is in this Court pursuant to 28 U.S.C. §1331 since this is a civil action which arises under the Constitution and laws of the United States.

2. Jurisdiction is also in this Court pursuant to 28 U.S.C. §1337 since this is a civil action arising under an Act of Congress purporting to regulate commerce.

3. Plaintiffs seek a declaration of the rights of the parties pursuant to 28 U.S.C. §§2201 and 2202 and Rule 57 of the Federal Rules of Civil Procedure.

4. Plaintiffs also seek a declaration that 30 U.S.C. §1201 *et seq.*, the Surface Mining Control and Reclamation Act of 1977, Public Law 95-87 (hereafter Act) is unconstitutional.

5. Plaintiffs also seek to have this Court permanently enjoin the enforcement and implementation of 30 U.S.C. §1201 *et seq.* and all regulations proposed and promulgated thereunder.

Parties

6. Plaintiff State of Indiana (hereafter State), is a sovereign state of the United States, admitted to the Union as the nineteenth state in 1816.

7. Plaintiff Otis R. Bowen, M.D., Governor of the State of Indiana is the chief executive officer of the State and is charged with the duty of appointing the Director of the Indiana Department of Natural Resources as well as the members of the Natural Resources Commission.

8. Plaintiff Joseph D. Cloud, Director of the Indiana Department of Natural Resources, pursuant to I.C. 13-4-6-4, has been granted the duty and power by the Indiana General Assembly to administer; supervise and enforce the Indiana Strip Mining Reclamation act.

9. The Indiana Department of Natural Resources is charged by law with the power to investigate, to compile and disseminate information, and to make recommendations concerning the natural resources of the State and their conservation, including the drainage and reclamation of lands.

10. Defendant Cecil D. Andrus is the Secretary of the Department of Interior (hereafter Secretary), and Defendant Walter Heine is the Director of the Office of Surface Mining Reclamation and Enforcement (hereafter Director), and they are responsible for administering the Act.

11. The Defendant Office of Surface Mining Reclamation and Enforcement (hereafter Office) is a division of the Defendant Department of the Interior, and it is through the Office that the Secretary administers all aspects of the Act.

12. The United States of America, through the Department of Interior and its Secretary and the Office and its Director, has attempted to control all aspects of the reclamation of surface mined areas within the states, and has attempted to pre-empt any and all valid state laws dealing with such reclamation.

Claim for Relief

13. Indiana is in the top six (6) states in the total production of coal by surface mining techniques, and is in the top nine (9) states in the total production of coal by all mining techniques.

14. The first state to enact legislation dealing with the reclamation of surface mined areas was West Virginia in 1939. Indiana enacted its first statute in 1941, thirty-six (36) years prior to the first Federal Act.

15. Prior to the passage of the Act in 1977, thirty-eight (38) states had passed legislation dealing with the reclamation of mined area within their respective states, taking into consideration the particular variables within those states to arrive at the standards to be utilized therein. Twenty-six (26) of those states have coal mining operations within their borders, and are, therefore, affected by the Act.

16. In 1974, Indiana joined thirteen (13) states which supply approximately ninety percent (90%) of the nation's coal production, and signed the Interstate Mining Compact (hereafter Compact), I.C. 14-4-2.2-1, with purposes to:

1. Advance the protection and restoration of land, water and other resources affected by mining.

2. Assist in the reduction or elimination or counteracting of pollution or deterioration of land, water and air attributable to mining.

3. Encourage, with due recognition of relevant regional, physical, and other differences, programs in each of the party States which will achieve comparable results in protecting, conserving, and improving the usefulness of natural resources, to the end that the most desirable conduct of mining and related operations may be universally facilitated.

4. Assist the party States in their efforts to facilitate the use of land and other resources affected by the mining, so that such use may be consistent with sound land use, public health, and public safety, and to this end to study and recommend, wherever desirable, techniques for the improvement, restoration or protection of such land and other resources.

5. Assist in achieving and maintaining an efficient and productive mining industry and in increasing economic and other benefits attributable to mining.

17. Coal is the most abundant source of energy in the United States, and is used to produce ninety-seven percent (97%) of all electricity generated in Indiana.

18. The Plaintiffs regulate surface mining activities within Indiana pursuant to I.C. 13-4-6-1 *et seq.*, I.C. 14-4-2-1 *et seq.*, I.C. 14-4-2.1-1 *et seq.*, and I.C. 14-4-2.2-1 *et seq.*, which provide, *inter alia*, for the reclamation and restoration of lands adversely affected by surface mining activities.

19. The State has also enacted comprehensive legislation governing land use planning and real property within Indiana.

20. Included in the purposes of the Act, as found at 30 U.S.C. §1202, are:

. . .

(c) assure that surface mining operations are not conducted where reclamation as required by this chapter is not feasible;

. . .

(f) assure that the coal supply essential to the Nation's energy requirements, and to its economic and social well-being is provided and strike a balance between protection of the environment and agricultural productivity and the Nation's need for coal as an essential source of energy.

. . .

(k) encourage the full utilization of coal resources through the development and application of underground extraction technologies;

. . .

(m) wherever necessary, exercise the full reach of Federal constitutional powers to insure the protection of the public interest through effective control of surface coal mining operations.

21. Pursuant to the Act, the Defendants have issued final and proposed regulations which may be found at 30 C.F.R., Part 700 *et seq.*

22. Subchapter IV of the Act establishes a fee which is, in effect, a tax or penalty, and also establishes procedures for reclaiming lands which have been "adversely affected" by past surface coal mining. 30 U.S.C. §1231 *et seq.*

23. The "Fee Collection Report" issued by the United States Department of the Interior shows that Indiana coal mining operators paid $1,970,402 in fees for the quarter ending December 31, 1977, and a total of $30,925,490. was paid by operators in the twenty-six (26) reporting states.

24. The fees paid in the quarter ending December 31, 1977, were enormous, and production of coal in that quarter was greatly reduced due to the nation-wide coal strike.

25. Preliminary figures for 1977 indicate that 27.9 million tons of coal were mined in Indiana with approximately 525,000 tons being mined by underground techniques. If the same amount is mined in 1978, Indiana coal mining operators will pay fees, pursuant to 30 U.S.C. §1232, of $9,660,000. which will, by necessity, be passed on to the consumers in Indiana and other states, including the State of Indiana as a consumer, in the form of increased costs for coal, electricity, and other products using coal in the manufacturing process.

26. Subchapter V of the Act establishes a regulatory scheme for surface coal mining, reclamation, and use of reclaimed lands. 30 U.S.C. §1251 *et seq.*

27. Pursuant to 30 U.S.C. §1253, each state in which there is or may be conducted surface coal mining operations may only assume exclusive jurisdiction over the regulation of surface coal mining by filing a state program with the Secretary which demonstrates the state has the capability of carrying out the provisions of the Act through seven specific and extensive requirements.

28. The State is required to submit its plan to the Secretary by the end of the eighteen-month period beginning August 30, 1977; the Secretary then has six months to approve or disapprove the plan; and if disapproved, the State has sixty (60) days in which to resubmit the plan which shall be approved or disapproved within sixty (60) days.

29. In the event a state fails to submit an acceptable program or fails to implement, enforce, or maintain its approved program, the Secretary, pursuant to 30 U.S.C. §1254, shall prepare, promulgate and implement a Federal program for that state.

30. Since May 4, 1978, the effective date of the Act, operators of coal mining operations within Indiana and elsewhere have been subjected to 30 U.S.C. §1252 which mandates compliance with the Federal act.

31. Pursuant to 30 U.S.C. §1265, permits issued under the Act to conduct surface coal mining operations require that the operations comply with extensive "performance standards", thereby attempting to pre-empt matters properly within the jurisdiction and control of the State.

32. The Plaintiffs allege, upon information and belief, that compliance with the Act has resulted in substantial initial capital expenditures by the operators within Indiana exceeding $100,000,000. and will result in substantial additional capital expenditures and operating expenses in the future which will, by necessity, be passed on to the consumers in Indiana and other states, including the State of Indiana as a consumer, in the form of increased costs for coal, electricity, and other products using coal in the manufacturing process.

33. If the operators fail to comply with the provisions of the Act they will be subject to penalties of up to $5,000. per day per violation plus the possibility of closure of their mines and the denial of new or renewal mining permits, all to their detriment and to the irreparable injury of such operators and the State and to the consuming public if such closures would lead to an interruption of the supply of coal.

34. The Defendants have retained complete and overall enforcement powers under the Act, regardless of the sufficiency of any present or future State laws, even though Congress found in 30 U.S.C. §1201 that because of the diversity of the factors involved in surface mining the primary responsibility of governing that activity should rest with the states.

35. Pursuant to 30 U.S.C. §1237, the Secretary, his agents, employees, or contractors, have the right "as an exercise of the police power" to enter upon any property adversely affected by past coal mining practices and any other property in order to have access to such property to do all things necessary or expedient to restore, reclaim, abate, control or prevent the adverse effects.

36. Pursuant to 30 U.S.C. §1237, the Secretary, his agents, employees, or contractors, have the right "as an exercise of the police power" to enter upon any property for the purpose of conducting studies or exploratory work to determine the existence of adverse effects of past coal mining practices and to determine the feasibility of restoration, reclamation, abatement, control or prevention of such adverse effects.

37. The Act is an unconstitutional invasion of the powers reserved to the State by the Tenth Amendment to the Constitution of the United States, and does not involve any of the powers delegated to the United States.

38. The regulations promulgated and adopted under the Act as well as the proposed regulations constitute a drastic intrusion of the federal government into the affairs of the citizens of Indiana and the State.

39. The Act is unconstitutional in that it purports to regulate, under the guise of the commerce clause, Article 1, §8, cl. 3 of the Constituion, activities purely local in nature within the State of Indiana.

40. The process of surface coal mining, reclamation, and/or the subsequent use of reclaimed lands have no substantial, direct, or indirect effects on interstate commerce.

41. The Act, and the regulations proposed and promulgated thereunder, interfere with the traditional attributes of sovereignty of the State, including, but not limited to land use control and planning, regulation of the rights to and in real property, protection of public health and safety, and it interferes with the structuring of the governmental operations of the State.

42. The sovereign powers of the State of Indiana and of the people, as reserved to them by the Tenth Amendment to the Constitution of the United States, are to be exercised by the Legislature of the State for the benefit of the citizens of the State in light of various local conditions and considerations, and are not to be exercised under threat, coercion, intimidation or undue influence by the United States.

43. The Act is unconstitutional in that it purports to allow access to private property of Indiana citizens without a warrant under "the police power," a power which does not exist in the Defendants or the Federal government.

44. The Act is not capable of enforcement since it is vague, overbroad and lacks specificity in its terms, thereby not allowing those purportedly regulated by it to know what is required of them by the law.

45. The Act pre-empts valid laws enacted by the State of Indiana which have been functioning for decades in the regulation of the reclamation of mined areas. Those laws, which have been highly successful in Indiana and which have been models for legislation by

other states, provide for higher land use reclamation than allowed by the Act, thereby necessitating the procedural requirement of applying for a variance and getting that application approved in order to effect the higher use that is required as a matter of course under Indiana law.

46. Indiana's program for reclamation is enforced and implemented by a staff of ten (10) state employees, but in order to comply with the provisions of this Act that staff will need to be increased by an additional nineteen (19) persons, the result of which is a needless, additional financial burden to the citizens of Indiana, while the effectiveness of the program will be reduced below that achieved by the State regulatory scheme.

WHEREFORE, for all the above and foregoing, the Plaintiffs respectfully pray this Court assume jurisdiction of this cause; declare 30 U.S.C. §1201 *et seq.*, Public Law 95-87, and all regulations proposed and promulgated thereunder, unconstitutional, void, and of no effect; enjoin the enforcement of 30 U.S.C. §1201 *et seq.*, Public Law 95-87, and all regulations proposed and promulgated thereunder; grant judgment to the Plaintiffs, costs versus the Defendants; and for all other just and proper relief.

STATE OF INDIANA

/s/ OTIS R. BOWEN, M.D.
Governor of the State of Indiana

INDIANA DEPARTMENT OF
NATURAL RESOURCES

/s/ JOSEPH D. CLOUD
Director, Indiana Department
of Natural Resources

/s/ THEODORE L. SENDAK
Attorney General of Indiana

/s/ DONALD P. BOGARD
Chief Counsel

Attorneys for Plaintiffs

[Filed: August 16, 1978]

Indiana Coal Association, et al. v. United States, et al.
No. IP 78-501-C

COMPLAINT

Plaintiffs for their claim for relief against defendants state:

1. The matter in controversy is a civil action and arises under the United States Constitution and laws of the United States and this Court has jurisdiction pursuant to 28 U.S.C. § 1331, 28 U.S.C. §§ 2201 and 2202, and 5 U.S.C. § 701.

2. The Surface Mining Control and Reclamation Act of 1977, Public Law 95-87, 30 U.S.C. § 1201, *et seq.* [hereinafter "the Act"] was enacted August 3, 1977. Defendants, Cecil D. Andrus and Walter Heine, in their respective capacities as Secretary of the Department of the Interior and as Director of the Office of Surface Mining Reclamation and Enforcement are charged with responsibility for administering the Act, are presently intending to enforce the Act and have issued final and proposed regulations thereunder [30 C.F.R., Part 700 *et seq.*].

3. Plaintiffs, AMAX Inc. through its division AMAX Coal Company, Peabody Coal Company and the members of the Indiana Coal Association [hereinafter "Coal Company Plaintiffs"] are owners and operators of surface coal mines in the State of Indiana and in other states and some of them have present plans for enlarging such surface mining operations and for opening of new mining operations which are subject to the requirements of the Act; and plaintiff John A. Conlon is a resident of the State of Indiana. Defendant Meadowlark Farms, Inc. owns interests in realty, some including fee simple absolute and some including only the coal in-

terests; and Meadowlark leases some of such realty interests including coal to AMAX Inc. After removal of the coal and reclamation, Meadowlark performs farming operations on the reclaimed land.

4. Title IV of the Act establishes a tax or penalty and procedures for reclaiming lands which have been adversely affected by past surface coal mining.

5. Title V of the Act establishes a regulatory scheme for surface coal mining, reclamation, and use of reclaimed lands.

6. Coal Company Plaintiffs are subject to Act § 502(c) which became effective May 4, 1978, which requires that such plaintiffs comply with provisions of: Act § 515(b)(2) [requiring restoration of land affected by surface coal mining operations to a "condition capable of supporting [prior] uses . . . or higher or better uses"]; Act § 515(b)(3) [requiring land affected by surface coal mining operations to be reclaimed to establish the "approximate original contour of the land"]; Act § 515(b)(5) [requiring removal of top soil in surface coal mine operations in separate layers and to segregate the same]; Act § 515(b)(10) [requiring operators to minimize disturbances to prevailing hydrologic balance]; Act § 515 (b)(13) [concerning treatment of mine waste piles]; Act § 515(b)(15) [concerning use of explosives]; Act § 515(b)(19) [concerning establishment of permanent vegetative cover on reclaimed land]; and Act § 515(d) [concerning standards for steep slope surface coal mining]. As more specifically hereafter alleged, defendants also are wrongfully and without authority attempting to presently enforce Act § 515(b)(7).

7. Coal Company Plaintiffs have not, prior to May 4, 1978, been required to conduct operations of surface coal

mining in accordance with the foregoing provisions of the Act; Coal Company Plaintiffs' compliance with such provisions has resulted in substantial initial capital expenditures in excess of $100 million and will result in substantial additional capital expenditures and substantial increases in operating expenses.

8. If Coal Company Plaintiffs fail to comply with the aforementioned sections of the Act on and after May 4, 1978, such plaintiffs will be subject to penalties of up to $5,000 per day per violation and enforcement provisions of the Act which include closure of the mines of such plaintiffs, denials of new mining permits and denials of renewal mining permits, all to the detriment and the irreparable injury of such plaintiffs.

9. After the approval of a state program under Act § 503 or a federal program under Act § 504, Coal Company Plaintiffs will be required to comply with the entirety of Title V of the Act.

10. Coal Company Plaintiffs have paid and must continue to pay a tax or penalty pursuant to Act § 402.

11. Regardless of the sufficiency of any present or future laws or program of the State of Indiana which are mandated by the Act, the United States has retained complete and overall enforcement powers under the Act.

12. The entirety of Title V of the Act and portions of Title IV of the Act are contrary to the Constitution of the United States as more fully set forth hereafter.

13. Plaintiffs' remedies at law are inadequate and plaintiffs will suffer irreparable harm unless the Court grants the relief as hereinafter requested.

14. Title V of the Act is contrary to the Constitution of the United States in that the United States pur-

portedly is exercising power to regulate under the commerce clause of the Constitution (Art. I, § 8, cl. 3).

15. The process of surface coal mining, reclamation and/or the subsequent use of the reclaimed land are purely local activities confined within the State of Indiana and other states where such activities take place.

16. The process of surface coal mining, reclamation, and/or the subsequent use of the reclaimed land have no substantial, direct or indirect effect on interstate commerce.

17. There is no rational basis for any conclusions or findings of Congress (§ 101 of the Act) that surface coal mining operations, surface coal mining reclamation, or subsequent land use have any effect or burden on interstate commerce.

18. If there is a rational basis for a finding that some aspect of surface coal mining, or reclamation, or subsequent land use result in any effect or burden on interstate commerce, provisions of Title V are not reasonably adapted to, limited to, or related to removing or regulating any effect or burden on interstate commerce.

19. The State of Indiana is presently, and was prior to the Act, regulating surface mining activities under IC 13-4-6-1, *et seq.* and IC 14-4-2-1, *et seq.* and under IC 14-4-2.1-1, *et seq.* the State of Indiana is presently, and had prior to the Act, made provision for the restoration and reclamation of land located in the State of Indiana which has been adversely affected by past surface mining practices, including surface coal mining practices.

20. Titles IV and V of the Act are contrary to the Tenth Amendment of the Constitution of the United States in that the United States is interfering with the

structuring of the governmental operation of the states, including the State of Indiana, and with the functions essential to the states, including the State of Indiana and its citizens under the Constitution of the United States as alleged in paragraphs 21-28 hereafter, and in particular:

a. Pursuant to Act § 502(b) the State of Indiana is required to issue mining permits in compliance with Title V of the Act.

b. Pursuant to Act §§ 507, 508, 510, 515 and 522(a), (c) and (d) reclamation to facilitate subsequent land use and land use planning is required of the State of Indiana pursuant to federally created standards which are unrelated to any power of the United States enumerated under the Constitution of the United States, and such are an exercise of a power reserved to the states, including the State of Indiana, or the people.

c. Pursuant to Act § 522(e)(3), (4) and (5), surface coal mining is prohibited, unless waivers or approvals are obtained pursuant thereto, and public road relocation is required under Act § 522(e)(4). Such attempts at regulation are not related to, and are not authorized by, any enumerated power of the Constitution of the United States, but are related solely to powers reserved to the states, including the State of Indiana, and to the people.

d. Pursuant to Act § 510(b)(6), the Act allows a federal authority to adjudicate private property rights, in that a surface coal mining permit will be denied if a dispute exists as to whether the operator has rights to surface mine. Such is not authorized by any enumerated power of the Constitution of the United States, but is related solely to powers reserved to the states, including the State of Indiana, and to the people.

e. Pursuant to Act § 515, standards and procedures for regulation of reclamation and subse-

quent land use are established. Such are not authorized by any enumerated power of the Constitution of the United States, but are related solely to powers reserved to the states, including the State of Indiana, and to the people.

21. Act § 503 allows the State of Indiana to administer and enforce parts of Title IV and all of Title V. Act § 405(c) allows funds to be distributed to the State of Indiana, only on the condition that the State of Indiana exercises its sovereign powers by enacting laws consistent with the Act and the regulations promulgated thereunder.

22. Titles IV and V in whole or in part are unconstitutional as being contrary to the delegated powers of the United States under the Constitution of the United States and contrary to the Tenth Amendment thereof; although many of the provisions, which are unconstitutional when exercised by the United States, may be validly exercised by the various states, including the State of Indiana, pursuant to their sovereign and retained powers.

23. The United States, intentionally with the purpose of coercing, intimidating and otherwise unlawfully causing the states to exercise their sovereign powers, enacted the Act and so commingled the provisions which might be lawful for the United States to enact, with provisions which are unlawful, that the State of Indiana and its citizens cannot determine whether it is in the best interests of the citizens and of the State to exercise its sovereign powers, enact legislation, and administer Title IV and Title V. As a result of regulations promulgated by the defendants under the Act, the State of Indiana has been coerced and unlawfully forced in violation of its sovereign power reserved under the Constitution to

enact legislation to enforce and to administer parts of Title V of the Act.

24. The sovereign powers of the State of Indiana and of the people, as retained by the Tenth Amendment of the Constitution of the United States, are to be exercised by the Legislature of the State of Indiana for the benefit of the citizens of the State in light of the various local conditions and other local considerations; such sovereign powers are not to be exercised under threat, coercion, intimidation or undue influence by the United States.

25. Act § 503 and Act § 405 unlawfully interfere with the legislative process of the State of Indiana and the exercise of the sovereign rights of the State of Indiana, contrary to the Constitution of the United States and the Tenth Amendment.

26. Act § 503 constitutes an attempted purchase of the rights and sovereign powers of the states and the rights of the people by the United States contrary to the Constitution of the United States and the Tenth Amendment, and an attempt to amend and limit the Constitution of the United States so as to enlarge and enhance the delegated powers of the United States contrary to the Constitution of the United States and the Tenth Amendment, all to the irreparable detriment and expense of the State of Indiana and the people.

27. Title IV and Title V of the Act are contrary to the Tenth Amendment of the Constitution of the United States which reserved all, but specific delegated powers, to the states or the people, and contrary to the federal system required under the Constitution of the United States in that the United States in coercing, threatening, intimidating, and creating undue influence upon the states and the citizens thereof, including the State of In-

diana and its citizens and the governmental bodies thereof, including the Governor, the House of Representatives and the Senate of the State of Indiana.

28. The State of Indiana and its citizens cannot reasonably decide whether to enact the necessary legislation and to submit a state program under Act § 503, or whether to remain silent and allow the United States to administer a federal program under Act § 504, unless this Court declares which, if any, of the provisions of Titles IV and V can be validly exercised by the United States without legislation of the State of Indiana, and the lawfulness of the provisions which are coercive, intimidating and undermining to the sovereignty of the State of Indiana and its citizens.

26. Plaintiffs are being deprived of their property and rights without due process of law or without just compensation contrary to the Fifth Amendment of the Constitution of the United States and in particular:

a. Title V of the Act requires that Coal Company Plaintiffs reclaim land subsequent to surface coal mining activities to the extent of establishing such land's prior contour [§ 515(b)(3)], without the consent of such plaintiffs as to their own property interests, and such plaintiffs will be denied a permit pursuant to the Act, and their property rights will be rendered valueless unless they comply with the Act.

b. Title V of the Act requires that Coal Company Plaintiffs reclaim land subsequent to surface coal mining operations so that such land can be capable of supporting its prior use or a higher and better use [§ 515(b)(2)], all without the consent of such plaintiffs as to their own property interests, and such plaintiffs will be denied permits to mine land and their property rights will be rendered valueless unless they comply with the Act.

c. Title V of the Act requires that Coal Company Plaintiffs reclaim land so that it is capable of achieving prior productivity [§ 515(b)(7)], without the consent of such plaintiffs as to their own property interests, and such plaintiffs will be denied a permit and their property rights will be rendered valueless unless they comply with the Act.

d. Each of the foregoing require inordinate and confiscatory expenditures for equipment and increases in operating costs for Coal Company Plaintiffs to achieve such states of reclamation.

e. Title V of the Act allows permit applications to be denied based on proposed post mining uses [§§ 507, 508 and 510] so that plaintiffs' interests in their land will be rendered valueless.

f. Title V of the Act prohibits surface coal mining unless the above can be satisfied, and in other instances surface mining is prohibited as pursuant to Act § 522 and Act § 515(b)(12) so that plaintiffs' property interests will be rendered valueless.

g. The remaining provisions of Act §§ 507, 508, 509, 510, 515 and 516, as well as the foregoing provisions as set forth in a. through g., all require that Coal Company Plaintiffs change their procedures and expend inordinate and confiscatory amounts for capital and increased operating costs and expenses or be denied permits, in which event the property interests of such plaintiffs will be rendered valueless.

h. Each of the requirements of the Act as set forth above in subparagraphs a. through h. have no rational basis in relation to the ends, if any, which are constitutionally permissible.

i. There is no rational basis for the difference between the treatment of surface coal mining and other methods of mining coal under Act § 515(b)(12), § 515(b)(15)(C)(iii), § 402, and Title V.

j. Property of plaintiffs has been confiscated and rendered valueless as a result of the Act without payment or provision for payment of just compensation in violation of the Fifth Amendment to the Constitution.

k. Coal Company Plaintiffs in the course of developing mines to extract coal by the surface mining method, sometimes acquire the coal rights from the owner of the fee simple title by lease with the right to disturb the surface; and after the coal is removed, the surface is returned to the fee owner. The fee owner is paid for the coal by a royalty method of payment. By requiring the reclamation in the manner set forth in the Act, the cost of reclamation and the resulting increase in the value of the surface will inure to the benefit of the fee owner which benefit was not considered in the establishment of the royalty payment to the fee owner. The contracts and leases of the Coal Company Plaintiffs are thereby being impaired and the Coal Company Plaintiffs are being deprived of their property.

30. Act § 516 is unconstitutional and is contrary to the separation of powers and provisions of the United States Constitution and delegates power of Congress to administrative agencies without sufficient standards.

31. Act § 502(e) and § 517 are contrary to the Fourth Amendment of the Constitution of the United States in that the same allow and compel unlawful searches or seizures of plaintiffs' property.

32. Act § 518 of the Act is contrary to the Fifth Amendment of the Constitution of the United States in that due process is not accorded to plaintiffs herein if a violation occurs, since a hearing before an impartial tribunal and the opportunity to present evidence to such impartial tribunal are denied except on the prepayment of proposed penalties, all of which combine to create a

chilling effect upon the rights of plaintiff pursuant to the Fifth Amendment.

33. The penalties provided pursuant to Act § 518 are criminal penalties and plaintiffs are being wrongfully denied the right to a jury trial pursuant to the Sixth Amendment to the Constitution of the United States.

34. The "reclamation fee" assessed against Coal Company Plaintiffs pursuant to § 402 of the Act is discriminatory as against surface coal mining, contrary to the Fifth Amendment of the Constitution of the United States; and further such fee is in fact a direct tax on property and is not apportioned among the states based on population, contrary to the Constitution of the United States. Article I, Section 2, Clause 3 and Article I, Section 9, Clause 4.

35. Act § 521(a)(1) which permits private citizens access to the private property of the Coal Company Plaintiffs constitutes an invasion of the constitutional right to privacy of such plaintiffs and is unconstitutional interference with the states' rights to define the laws of trespass as protected under the Tenth Amendment to the Constitution.

36. Act § 502(c) specifies those provisions of the Act which are to be in effect until a federal or state program is instituted.

37. Act § 502(c) does not specify that Act § 515(b)(7) is to be enforced during an interim period.

38. The defendants are attempting to enforce Act § 515(b)(7) contrary to their authority and the express provisions of the Act.

39. Coal Company Plaintiffs will have to comply with such provision and expend large amounts for capital and

incur substantial increased operating costs to comply with such section.

40. The Secretary of the Interior has promulgated regulations pursuant to Act § 501(b) without an environmental impact statement as required pursuant to the National Environmental Policy Act of 1969, specifically § 102(C) [42 U.S.C. 4332], and without otherwise complying with said act. The promulgation of regulations pursuant to Act § 501(b) constitutes a "major federal action" within the meaning of § 102(2)(c) of the National Environmental Policy Act.

WHEREFORE, plaintiffs pray that the Court grant (a) declaratory relief that Title V in whole or in part and Title IV as to Act § 402 are contrary to the Constitution of the United States as alleged, that the Secretary of the Interior has no authority to enforce such provisions, or that Act § 515(b)(7) is not a part of the interim program, that rules promulgated pursuant to Act § 515(b)(7) are major federal actions pursuant to NEPA, and that the Secretary of the Interior must comply with NEPA; (b) injunctive relief permanently enjoining defendants from enforcing any and all portions of the Act found to be unlawful, and a preliminary injunction enjoining defendants from enforcing the provisions of the Act as alleged; and (c) such other relief as may be proper.

ICE MILLER DONADIO & RYAN

/s/ HARRY T. ICE

/s/ G. DANIEL KELLEY, JR.

/s/ JAMES D. KEMPER

/s/ BYRON L. MYERS

Attorneys for Plaintiffs

[Filed: August 16, 1978]

PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

Come now the plaintiffs in the above-consolidated actions, by counsel, [hereafter plaintiffs in No. IP 78-500-C are referred to as "State of Indiana", and plaintiffs in No. IP 78-501-C as "coal companies"], and pursuant to Fed. R. Civ. P. 65 respectfully move the Court for a preliminary injunction enjoining the defendants, and any and all persons functioning as officers, agents, servants, employees and attorneys of the defendants, and those persons in active concert or participation with them, from enforcing, in any way whatsoever, Title V of the Surface Mining Control and Reclamation Act of 1977, Public Law 95-87 [hereinafter "the Act"], 30 U.S.C. §§1251 through 1272, pending a full trial of these actions on the mertis.

In support of said motion plaintiffs show to the Court as follows:

1. Plaintiffs incorporate by reference the allegations made in their respective complaints in support of this motion as well as all exhibits being submitted herewith.

2. The surface coal minable reserves in the State of Indiana are located on the eastern edge of what is commonly termed the Illinois Coal Basin which area of surface minable reserves is located generally in southwestern Indiana [Exhibits 5, 1 and 2]. To the west of these surface minable reserves are located the underground minable reserves [Exhibits 5 and 3]. At the present time approximately 99.75% of the coal being produced within the State of Indiana is being produced by the surface mining method, and further approximately 82% of this coal being produced on a yearly basis is sold within the State of Indiana, which in excess of 80% is sold to electric utilities within the State of Indiana [Exhibit 6].

3. Most of the areas in which the surface mining is presently taking place within the State of Indiana and in which it is expected to take place in the future contain large amounts of "prime farmland" as defined under the Surface Mining Control and Reclamation Act, hereafter referred to as the Act, [Exhibits 2, 7 and 8]. The percentage of the land mined by Peabody in 1978 and which will be mined by AMAX through 1983 which is prime farmland is set forth on Exhibits 7 and 8.

4. The primary reclamation standards under the Act, including the permitting procedure, are attempts by the Federal Government to interfere with a traditional area of sovereignty of the State of Indiana, that of land use planning and control as follows:

a. The Federal Government will condition the approval of surface mining permits upon approval of subsequent land use [§507(g), §508(a)(2), (3), (4), (8), (10), §515, see Brief in Opposition to Motion to Dismiss, pp. 44-51], and the Federal Government will be required to approve any change in the postmining use from the premining use.

b. Specific reclamation provisions of the Act are related solely to asserted Federal land use policies, as the requirement of reclaiming surface mined land to a condition capable of supporting prior or higher or better mining uses [§515(b)(2)], returning the land to its original contour, [§515(b)(3)], removal and replacement of topsoil [§515(b)(3)] (sic), separate removal, segregation and replacement of the A Horizon, B Horizon, and C Horizon with respect to the prime farmland [§515(b)(7)], and the conditioning of any permit to mine upon prime farmland upon a showing of the technological capabilities to restore such land to equal or higher levels of productivity, and requiring of the applicant that the proposed postmining use be farming and that such use actually takes place [§510(d) and

see pp. 55 of Brief in Opposition to the Motion to Dismiss].

c. Designation of areas within the State of Indiana that would be unsuitable for surface mining, and the prohibition of mining operations in certain areas are solely related to land use control in §522.

5. Prime farmland extensively covers surface minable reserves within Indiana [Exhibit 2], and the requirements of the Act that the applicant demonstrate that prime farmland can be returned to 100% equal levels of productivity before an applicant is allowed to mine such land are impossible to comply with based on presently known technology and experience.

6. The excessive mining costs will result in restricting the development and expansion of the surface mining industry within the State of Indiana as well as ultimately result in closures due to the excessive mining costs [Exhibits 9 and 10].

7. The combined effect of the impossibility of restoring prime farmlands to original levels of productivity after surface mining and the excessive costs will displace all or part of the surface mining industry within Indiana and prevent future development of the mining and associated industries [Exhibit 11] and cause mining companies to seek to mine by the underground method, all contrary to proper land use control and planning.

8. The potential underground minable reserves within the State of Indiana are of such quality and located in such a fashion within the Illinois Coal Basin that the coal mining industry of Indiana could be shifted into mining by the underground method on underground mining reserves within the State of Illinois or within western Kentucky [Exhibits 12 and 6].

9. The prime farmland which is assertedly being displaced within the State of Indiana due to surface mining, is infinitesimal and unimportant under proper land use planning considerations within the State of Indiana as are presently being exercised by the State of Indiana by reason of:

a. The six primary counties within the State of Indiana where surface mined coal is extracted, those being the counties of Clay, Greene, Pike, Sullivan, Vermillion, and Warrick [Exhibit 13], contribute less than 5% of the total production of agricultural commodities as corn, wheat, soybeans [Exhibit 14].

b. The county government financial structure and the delivery of governmental services in such counties are highly dependent on the sustaining of and development of the surface mine industry and other related industries which locate in such counties due to surface minable coal reserves, and which industry contributes a significant portion of the personal and real property taxes paid in such counties. For example, the industry paid in 1978 the following percentage of the total real and personal property taxes paid in the following counties: Clay 7.3%, Green 6.4%, Pike 18.05%, Sullivan 14.3%, Vermillion 5%, and Warrick 50.4%. [Exhibits 15 to 19].

c. The Federal Government through the Agriculture Stabilization and Conservation Service in 1978 paid farmers within the State of Indiana not to produce such crops on 369,135.6 acres, [Exhibit 20].

d. A higher and better postmining use of the prime farmland under proper land use policies might be for purposes other than farming and the Act prohibits this.

10. The land use policies being implemented by the Federal Government through the Act could seriously disrupt and displace the delivery of governmental ser-

vices by the foregoing counties contrary to the land use planning and control decisions of these counties and the State of Indiana, all contrary to the Tenth Amendment of the Constitution of the United States. To the extent there is any valid basis for an exercise of the commerce clause power to control pollution aspects of the surface mining industry means less intrusive upon the sovereignty and retained powers of the State of Indiana are available, [Exhibit 21].

11. Plaintiffs are threatened with irreparable harm in the event that enforcement of Title V of the Act is not enjoined in that:

a. State of Indiana in order to retain exclusive jurisdiction over its land and land use control and planning is mandated to submit a state program to the Federal Government no later than August 3, 1979. Indiana presently does not have the laws necessary to have such a program submitted, and the General Assembly is presently convened until no later than April 30, 1979 but could adjourn earlier, and will not reconvene until January, 1980. The General Assembly cannot determine whether to enact such legislation to authorize the State of Indiana to submit a program from the standpoint of what is in the best interest of the State of Indiana and its citizens unless and until this Court declares and decides which provisions of the Act, if any, can be constitutionally imposed upon the surface coal mining industry and the State of Indiana. The Act is specifically drawn so as to be unlawfully coercive upon the States and their legislatures with the intent that the States will be compelled and unlawfully coerced into enacting legislation which would cure the constitutional infirmities of the Federal Act [Brief in Opposition to Motion to Dismiss, pp. 67-74].

b. The Department of Interior has not to date promulgated regulations for a permanent program so that the General Assembly cannot make an informed and reasonable decision in the interest of the State of Indiana and its citizens whether to enact legislation at the present time authorizing the State of Indiana to submit a permanent program.

c. The Secretary of the Department of Interior has violated the express mandatory duty placed upon him pursuant to §501(b) that:

> "Not later than one year after the enactment of this Act [August 3, 1977], the Secretary shall promulgate and publish in the Federal Register regulations covering a permanent regulatory procedure for surface coal mining and reclamation operations performance standards based on and conforming to the provisions of Title V and establishing procedures and requirements for preparation, submission, and approval of State programs; and the development and implementation of Federal programs under the Title."

The time for the promulgation of permanent rules by the Secretary of the Department of Interior expired on August 4, 1978.

d. Such failure on the part of the Secretary of the Department of Interior is additionally coercive upon the State of Indiana and the General Assembly in that it becomes further impossible for the State of Indiana and the General Assembly to determine whether to enact legislation prior to August 3, 1979.

e. If the State of Indiana through the General Assembly does not enact legislation in the present General Assembly, it will be foreclosed from retaining control of its sovereignty in land use planning and control until after a Federal program is promulgated and adopted for the

State of Indiana which promulgation and development will begin by the Federal Government on August 3, 1979.

f. If the State of Indiana through the General Assembly acts under the present conditions of coercion and duress, it must either enact sufficient legislation without knowing the constitutionality of the Federal Act, and State of Indiana, its citizens, and coal companies will be barred by waiver from asserting questions as to the unconstitutionality of the Federal Act; or if the State of Indiana through the General Assembly does not act, it will be foreclosed for a period of at least two to three years from retaining jurisdiction and authority to regulate land use control and planning in the State of Indiana through the surface mining activities.

g. The State of Indiana through the Department of Natural Resources is being required to divert funds from its selected manner of delivering the State governmental services, to the extent of Two Hundred Fifty-Six Thousand Five Hundred Seventy-Eight Dollars ($256,578.00) on a yearly basis and the administrative officers of the Department of Natural Resources are now required to divert approximately 20% of their normal time to matters arising under the Federal Act which expenditure of time was not chosen for them as a matter of State policy in the delivery of the governmental services to its citizens, but rather all due to the coercion and duress applied against the State of Indiana by the Federal Government [Exhibit 22].

h. The State of Indiana is also suffering irreparable harm by the enforcement of the Act upon the State's coal producers since the State is a major consumer of coal and coal-generated electricity and steam. For the fiscal year 1976-1977, various State institutions used 393,434.37 tons of coal at a cost of $9,198,059.14 to the State. For the fiscal

year 1977-1978 (year of the coal strike), the various State institutions used 338,680.57 tons of coal at a cost of $9,035,662.70 to the State. During the fiscal year 1978 to approximately February 1979, the various State institutions have used 246,777.35 tons of coal at a cost of $7,497,599.24 to the State. The average cost per ton to the State was: 1976/1977—$23.38; 1977/1978—$26.68; 1978/ approximately February 1979—$30.38 [Exhibits 23-27]. Besides its direct consumption of coal, which is becoming more expensive because of the requirements placed upon coal producers by the Act, the State of Indiana is also an indirect consumer of coal through its purchase of electricity, [Exhibit 28].

i. The State of Indiana is facing current and future irreparable harm to its policy-making in land use control and planning, and in the delivery of its governmental services, all traditional areas of state sovereignty. Unless the enforcement of the Act is enjoined pending a full resolution of the merits, the State of Indiana is, and will continue to be, placed in a position where the State will be forced, by the terms of the Act, to either accept the Federal Goverment's land use policy as the State's policy for Indiana land, or lose entirely its jurisdiction over land use planning and control of Indiana land on which surface mining is to be done to the Federal Government.

j. Plaintiff coal companies have incurred and are continuing to incur substantial costs in complying with the unlawful provisions of the Act. In 1978, AMAX Coal Company expended in excess of Twenty-Seven Million Dollars ($27,000,000.00) in purchasing capital equipment to comply with the Act [Exhibit 29] as well as an additional Eight Million One Hundred Thousand Dollars ($8,100,-000.00) increased cost of operation for the four Indiana mines alone [Exhibit 9]. Unless this Court enjoins enforcement of the Act as requested,

AMAX will have to spend an additional Five Million Dollars ($5,000,000.00) for capital equipment in 1979 [Exhibit 30], and will further have to expend well in excess of Eight Million Dollars ($8,000,000.00) increased operating costs during 1979 [Exhibit 9]. Peabody has and will incur substantially similar capital expenditures or additional cost and expenses. If the Act is ultimately declared unconstitutional as requested, none of the cost and expenses incurred above are recoverable from the government and serious and prejudicial injury and harm will result to these plaintiffs.

k. Plaintiff AMAX has already closed one mine in southern Indiana causing the loss of employment opportunities and loss of revenue to the county governments in part due to the additional cost and expenses and burdens placed upon such mine by the Federal Act, all to the damage and injury of plaintiff AMAX for which it has no adequate remedy, [Exhibit 10].

l. Plaintiff AMAX has payed to the Federal Government in excess of Ten Million Dollars ($10,000,000.00) in 1978 due to the tax placed upon it by §401 of the Act and will have to continue to make such expenditures during the year 1979 probably in excess of that incurred during 1978, all to its irreparable damage unless the Court presently enjoins enforcement of the Act including the tax, [Exhibit 9]. Plaintiff Peabody has similarly paid and will continue to be forced to pay such amounts.

m. Plaintiff coal companies are presently and will continue to be mining upon prime farmland as defined by the Secretary of Agriculture within the State of Indiana [Exhibits 7 and 8]. There is presently no known technologically possible methods to return prime farmland to original levels of productivity. There were no such methods known or available at the time of the

enactment of the Act. Plaintiff coal companies must begin submitting applications for permits at the end of April, 1979 in which permits, the Federal Government may require a showing of technological capability to return the land to original and equal levels of productivity in which event plaintiff coal companies will be barred from conducting mining operations on such prime farmland. Such prime farmland is interspersed throughout the areas to be mined such that it is not economically feasible to continue mining operations if such prime farmland cannot be mined and plaintiff coal companies in the event of such actions by the Federal Government will be prohibited from conducting mining operations which will render the coal reserves owned or leased by the coal companies valueless, contrary to the Fifth Amendment of the Constitution of the United States.

12. Plaintiffs have no adequate remedy at law.

13. Plaintiffs are likely to prevail at the trial of this action. As more fully shown in Plaintiffs' Briefs In Opposition to the Motion to Dismiss, this lawsuit draws the constitutionality of the Act into serious doubt under the Commerce Clause, the Tenth Amendment, and the Fifth Amendment. The Act is an unconstitutional usurption of the powers reserved to the States with respect to land use control and planning, a traditional area of state sovereignty, and cannot stand as a valid exercise of the commerce power because there is no rational relationship between the facets of surface mining regulated and the adverse effects of surface mining on air and water quality sought to be eliminated, upon which relationship the validity of the Act depends; or at the very least there are manners less intrusive upon state sovereignty which are available to protect any legitimate Federal interest [Exhibit 21].

14. The issuance of a preliminary injunction with respect to Title V of the Act will not impose an undue burden or hardship on the defendants.

15. The issuance of a preliminary injunction of the scope sought by the plaintiffs will be in the public interest and the status quo before the Act should be preserved in that:

a. The Indiana legislature will be able to decide whether to exercise its authority with respect to the implementation of a state program with full knowledge of the manner by which the Federal Government can constitutionally regulate surface coal mining and reclamation operations within the State of Indiana, and will not be unlawfully coerced into enacting legislation which would cure the constitutional infirmities.

b. The citizens of the State of Indiana will be afforded the right to be regulated by the state officials elected for that purpose, and will be afforded the benefit of their legislative machinery, without the unlawful coercion attempted by the Act.

c. It will prevent the loss of jobs, as was the result of the closure of the Ayrcoe Mine, by reducing the likelihood of the closure of other mines; and it will avoid the blight that will otherwise result with respect to future coal mining operations in Indiana, which would in turn displace present State land use policies and displace State policies concerning the delivery of governmental services.

WHEREFORE, said plaintiffs pray that the foregoing Motion be granted and that the Court enjoin:

1) the enforcement, except as to federal lands, of §402(a) [30 USC §1232(a)] and Title V [30 USC §1251-1281] and all regulations promulgated thereunder; or

2) the enforcement of §502(b) and (c); §503, §504, §505, §506, §507, §508, §509, §510, §511, §512, §513, §515(a), (b)(2), (3), (5), (6), (7), (8), (12), (15), (16), (17), (18), (19), (20), (23), (24), §518, §521, §522, and §402(a), or any parts thereof and all regulations promulgated under any of the sections, or

3) at the very least the Federal Government from promulgating a federal program for Indiana until after June 30, 1980, or until 60 days after the conclusion of the first convening of the General Assembly of the State of Indiana after this Court renders a final decision on the merits, and further that this Court mandate the Secretary of the Department of Interior to treat Indiana in all respects as though such a date were the date established by §504(a) and §503 as the latest time for a state to submit a proposed state program; and

4) such other and further relief as is proper in the premises.

/s/ G. DANIEL KELLEY, JR.

/s/ BYRON L. MYERS

ATTORNEYS FOR PLAINTIFFS,
INDIANA COAL ASSOCIATION, *et al.*

THEODORE L. SENDAK
Attorney General of Indiana

/s/ DONALD P. BOGARD
Chief Counsel

/s/ JANE M. GOOTEE
Deputy Attorney General

[Filed: March 9, 1979]

JOINT PETITION FOR EXPEDITED TRIAL AND DECISION AND STIPULATION AS TO PROCEDURE

The parties in the above consolidated actions, by counsel, respectfully petition the Court for an expedited trial and decision in these cases, and in order to facilitate the same and reduce the issues, stipulate and agree as follows:

1. Because of the significant constitutional issues involved in these actions, it is to the benefit of each party that a decision on the merits be rendered as soon as possible, and particularly as early as possible in the 1980 session of the Indiana General Assembly.

2. As to the pending motion of plaintiffs for a preliminary injunction, the parties stipulate and agree that the Court need not decide the same and may proceed to a final disposition of the issues subject only to the Court's having taken defendants' motion to dismiss under advisement and that the allegations of the motion for preliminary injunction shall be taken as being a part of the complaints.

3. To conserve the time and effort of the Court and to expedite the final resolution of these proceedings, the parties stipulate and agree that coal industry plaintiffs withdraw the following issues from these actions without prejudice to raising such issues in other actions:

a. Rhetorical paragraph 31 of the complaint concerning the search and seizure issues.

b. Rhetorical paragraph 33 concerning the Sixth Amendment issues.

c. Rhetorical paragraphs 36, 37, 38 and 39 concerning whether § 515(b)(7) should be enforced during the interim program.

d. Rhetorical paragraph 35 concerning § 521(a)(1) permitting private citizens access to private property.

e. Rhetorical paragraph 40 concerning the NEPA issues.

f. That part of the request for relief relating to the withdrawn allegations.

4. In the interest of judicial economy and for the convenience of the Court, the parties further stipulate and agree that the exhibits and affidavits filed in support of, in opposition to and/or in response to defendants' motion to dismiss [motion for summary judgment] and plaintiffs' motion for preliminary injunction, and the testimony and other evidence presented at the hearing on the foregoing motions held on April 18, 1979, be made a part of the record and considered by the Court as the evidence in the trial on the merits with the only additional evidence being plaintiffs' Exhibit 45 attached hereto[1] as to which defendants have no objection.

5. The parties further stipulate and agree that the time for further briefing on the merits of this action shall be ten (10) days for the plaintiffs' brief, which time shall begin to run from the date of the Court's Order Entry on this petition, that defendants shall have ten (10) days from and after the filing of plaintiffs' brief to file a responsive brief, and that plaintiffs have five (5) days after the filing of defendants' brief to file reply briefs.

6. The parties further agree that if the Court desires, an oral argument can be held after the briefs have been filed.

---

[1] The relevant portion of plaintiffs' Exhibit 45 is set forth at p. 102 *infra*.

WHEREFORE, the parties pray that the Court grant this joint petition for expedited trial and decision and approve the stipulation as to the procedures.

ATTORNEYS FOR PLAINTIFFS,
INDIANA COAL ASSOCIATION, *et al.*

/s/ G. DANIEL KELLEY, JR.

/s/ BYRON L. MYERS

ATTORNEYS FOR PLAINTIFFS
STATE OF INDIANA, *et al.*

/s/ JACK O'NEILL
Deputy Attorney General

ATTORNEY FOR DEFENDANTS

/s/ HAROLD R. BICKHAM

[Filed: February 27, 1980]

EVIDENCE

Plaintiffs' [Appellees'] Exhibits[2]

Plaintiffs' Deposition Exhibit 3
To Deposition
Of R. Neil Sampson

Report of the
Interagency Task Force on
the Issue of a Moratorium or
a Ban on Mining in Prime Agricultural Lands

prepared by:
Office of Management and Budget
Soil Conservation Service
Bureau of Mines
Federal Energy Administration
U.S. Environmental Protection
Agency

The issue of imposing either a moratorium or a ban on prime farmlands arose in February, 1977 during the interagency review of proposed amendments to the surface mining legislation. Those agencies expressing a need for a moratorium on mining on prime farmland based their view on two studies on the effects of surface

[2] The exhibits and testimoy set forth herein was presented at the hearing on plaintiffs' Motion for Preliminary Injunction and defendants' Motion to Dismiss held on April 18, 1979. By stipulation of the parties, see p. 49 *supra*, the Court ordered that such exhibits and testimony be made part of the record and considered by the Court as the evidence in the trial on the merits.

mining on prime farmlands in Illinois, one of which was funded by the Department of Health, Education, and Welfare, and the other conducted by Jack Doyle of the Environmental Policy Center.

These studies indicated essentially:

- there are serious questions as to whether high capability agricultural lands strip mined for coal can be returned to their original capacity within an acceptable period of time. The test is not merely showcase growth but productive quality yields on a sustained basis and on a par with the full agricultural value of whatever grew there before mining.
- the problems with the Illinois Mined Land Conservation and Reclamation Act and Rule 1104 (Lands To Be Reclaimed For Row Crop Agriculture) is that nowhere in the law or the regulations are either pre-mining agricultural productivity or pre-mining agricultural yields referenced. Additionally, the Illinois strip mine law contains no provision for designating productive agricultural land as unsuitable for strip mining. As a result, the law encourages the direct and indirect loss of agricultural land through variance procedures and allowances for less productive restoration such as from row-crop use to pasture use.
- once areas in Illinois have been mined, they generally are not returned to intensive agricultural purposes, but rather the land uses generally change to urbanization, highways, and pasture-land.
- So long as there are deep mineable coal reserves in the quantities found in Illinois, there is no need to gamble away long term productive agricultural capacity at the hand of the short-term mining economies.

As a result of the findings expressed in the two studies, an interagency task force was convened to examine the particular issues of

- assurance that the productivity of soil can be restored after mining in prime farmlands
- the impact of a moratorium or ban on coal production reserves, and electric power generation
- the impact on land availability for food production if mining were allowed to continue on prime farmlands.

Prime Farmlands: The Situation[1]

The Department of Agriculture has been deeply involved in this issue for the past few years. In October 1975, the Soil Conservation Service adopted a definition of prime farmland to provide some consistency across the Nation. Prime farmland is defined as the land best suited for producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply to produce sustained high yields of crops, economically, whenn (sic) treated and managed according to modern farm methods. Prime farmland, is the farmland that gives highest yields with minimum inputs of energy or capital, and with the least damage to the environment in the process. It is the land which can be foarmed (sic) for generations with sustained high yields with proper management.

In 1975, the Soil Conservation Service conducted a Potential Cropland Study to evaluate the status of the

[1] Notes on presentation by R. Neil Sampson, Soil Conservation Service, at Congressional Research Service Workshop on Agricultural Land, Washington, D.C. February 3, 1977. (Footnote in original.)

Nation's croplands and the potential to bring additional land into production. The study was done by re-sampling a selected group of the 160-acre sample plots used in the 1967 Conservation Needs Inventory. This provided a statistically valid sample at the National and Farm Production Region level as illustrated in Figure 1. In addition, it also provided data on the amount and current use of the Nation's prime farmland. Comparisons of the current land use on the sample plots with their 1967 use identified the land use change over the 8-year period between the two surveys.

The Potential Cropland Study results indicate a total of 384 million acres of prime farmland in the United States. About 65% of this land is cropland or 250 million acres. Thus, prime farmland accounts for 62% of the 400 million acres currently cropped in the United States. Of the 134 million acres of prime farmland not now in cropland, 24 million acres have a high potential for conversion to cropland with no developmental problems. Another 15 million acres have a high potential for conversion to cropland but will require added investment to overcome problems. An additional 9 million acres have medium potential for conversion to cropland, but with more severe problems. Finally, 86 million acres have low to zero potential for conversion because of serious developmental problems. . . . [Pages 1-2.]

* * *

Regional Status of Prime Farmlands

The United States is divided into ten Farm Production Regions. Of these ten regions, the Corn Belt region has the largest acreage or 77 million acres of prime farmland. The Northern Plains regions is second with 72 million acres of prime farmland followed by the Southern Plains with 67 million acres. The three regions

with the smalles (sic) acreage of prime farmlands are the Pacific region with 14 million acres and the Northeast and Mountain regions, each having approximately 18 million acres.

For prime farmland cropped, the Corn Belt region leads the Nation with 61 million acres, followed by the Northern Plains and Lake states with 58 and 30 million acres respectively. The Southease (sic), Northeast, and Pacific regions have the lowest acreages of prime farmland being cropped with about 9 million acres each. Distribution of total cropland, total prime farmland, and prime farmland cropped in the United States is provided in Table 2.

Table 2

Distribution of Total Cropland, Total Prime Farmland and Prime Farmland Cropped in the United States

Farm Production Region	Total Cropland (million acres)	Total Prime Farmland (million acres)	Prime Farmland Cropped (million acres)
Appalachian	20.3	26.4	13.2
Corn Belt	86.7	76.9	61.2
Delta States	20.2	29.6	15.2
Lake States	44.1	38.4	30.4
Mountain	40.6	18.1	15.7
Northeast	17.3	17.9	8.9
Northern Plains	90.8	72.0	58.1
Pacific	21.9	13.8	8.9
Southeast	16.5	23.6	9.0
Southern Plains	41.0	67.2	29.2
United States	400.	384.	250.

Production from Prime Farmlands

Around 66% of the 1975 crops of grain, corn, soybeans, wheat, cotton and feed grains were grown on prime farmland. Nearly all of the cotton was grown on prime

farmland or 89%. Of the other crops, 75% of the corn harvested as grain, 70% of the soybeans, 61% of the feed grains, and 54% of the wheat was grown on prime farmlands. Yields from prime farmlands are substantially higher than those from non-prime lands and are illustrated in Table 3. [Page 4.]

* * *

Loss of Prime Farmland

A total of 23 million acres have been converted to urban and water uses during the period from 1967 to 1975. This represents an average of three million acres per year converted to these uses during that period. The greatest losses are in prime farmlands as illustrated in Table 5. An annual average of one million acres of prime farmland was converted to urban and water uses during this period. Another one million acres of non-prime land in classes II through IV were also converted each year. Of the 8 million acres of prime farmland lost to urban and water uses, 6.5 million acres were converted to urban uses and 1.5 million acres to water or 80% and 19% respectively.

* * *

The United States has ample farmland to meet its domestic needs for the foreseeable future. However, there are some persons who believe that there exists an ethical responsibility to retain as much as possible the existing farmlands of this Nation. In their view there is a humanitarian aspect of this problem and they believe that every acre of prime farmland that goes out of production represents loss of food stocks which could be made available to people in less developed areas of the world. This view generally does not recognize the issues associated with getting the food from the United States

to those needy in other countries, e.g., transportation costs, foreign limitations of the less developed countries, and the views of other countries exporting agricultural products. [Page 6.]

* * *

Arguments on the issue of whether prime farmlands can be reclaimed to their original level of productivity.

A. Arguments suggesting that prime farmlands can be reclaimed to their original level of productivity.

- For several years, experts have encouraged making a decision before mining is done as to the intended use of the land after mining. Plans are made for grading and other operations needed for the intended land use. Generally, the land use selected is a low intensity use for which little care in placement of the spoil is needed. As a result, a site barely suitable for the intended use is created, with a soil having a productive capcity or use potential much lower than that which might have been constructed if the soil materials had been placed in the proper sequence. For many areas, it is possible to construct soils with use potential even higher than that which had existed before mining. The only State that now requires separation of A and B horizons and proper sequencing for soil placement is North Dakota. Studies there indicate that prime wheatland can be reclaimed to original levels of productivity.
- Studies reported by McKormick, of the Soil Conservation Service in eastern Ohio, and southwestern Pennsylvania, utilizing soil reconstruction methods, indicate that soil reconstruction can full (sic) restore or, in many areas, actually improve the productive capacity of mined lands.
- The German experience.
- Steps needed in soil reconstruction in order to achieve these results are as follows:

1) Obtain detailed soil survey of proposed area of surface mining to determine properties of each soil horizon.
2) Determine by testing, or by general information in the area, the nature of each geologic stratum above the coal. Use this information to identify toxic or otherwise objectionable strata that should be buried and to identify properties of the mixture of strata likely to be produced by the proposed mining technique.
3) Evaluate the comperative quality of the B horizon of the natural soil and the mixture of geologic strata to be produced by mining and choose the best material for the subsurface layer of the reconstructed soil.
4) Remove and stockpile separately the entire A horizon of the natural soil.
5) Where it is shown to be most favorable for the reconstructed soil, excavate and stockpile separately material from the B horizon of the natural soil according to plans for mixing (or keeping separate) selected portions of the B horizons to provide a favorable subsurface horizon of uniform thickness throughout the area to be surface mined, i.e., on all the soil series that occur.
6) Carry out mining operation, carefully burying all objectionable strata.
7) Grade spoil to planned land configuration.
8) Regrade the material from the B horizon over the graded spoil to the planned thickness to form the subsurface horizon of the reconstructed soil.
9) Regrade the A horizons over the subsurface horizon in a uniform thickness.
10) Seed as soon as grading is completed.

° The soil requirements of a productive soil are well known to soil scientists and agronomists. The properties of the soil at the site of surface

mining can be accurately determined before mining from soil surveys. If the soil horizons are carefully stockpiled and returned to the graded spoil in proper sequence after mining, the productive capacity of most soils will be restored within a few years. Care will be required in excavation and handling to assure (a) that the soil horizons are properly identified, (b) that the A and B horizons be excavated selectively and stockpiled separately, and (c) that erosion and contamination of the stockpiled soil materials from these horizons be prevented. Also care will be required in replacing and regrading these soil materials after mining to assure that material from each horizon is graded over the area in uniform thickness, that the soil materials be replaced in proper sequence, and that overcompaction or puddling are avoided and proper soil compaction is achieved.

- If the operational capability outlined above can be assured, the productive capacity of the soil that existed before mining can be restored in a reasonable time.

B. *Arguments suggesting that Prime Farmlands cannot be Reclaimed to their Original Level of Productivity*

- While there are theories and proposals for proper land reclamation there is no demonstration to date which shows that prime farmland used for row crops such as corn and soybeans can, after having been reclaimed after strip mining, give equivalent crop performance. No tests like that have yet been made in Illinois. Because of this 22 projects will be getting underway through USDA Cooperative State Research Service to demonstrate the proper recovery procedures and the best crop production possible. For example, the University of Illinois is starting a 5-year experimental pro-

gram on two tracts with different geological strata. The plots in these tracts will be laid out and prepared in the summer of 1977. First crops will be grown in 1978. Allowing for break-in period, normal crop rotation and fluctuations in the weather, 5 years are needed to assess land capability.

Dr. Ivan Jansen, agronanist (sic) in charge of the University of Illinois program will study the following:

- Soil character - particle size, structure, density, chemical properties, compaction.
- Soil organisms - population can decline markedly during mining and reclamation procedures and may take years to recover.
- Root development in virgin and reclaimed soils. Barriers to root development will be noted on roots dug up.
- How different mining techniques change character of soil as related to premined landscape and geological column.
- Hydrological characteristics of the reclaimed soil and the water table. Reclaimed land has less water holding capacity and permits less water infiltration and causes more of rains to run off. Irrigation will be used if intermittent dry spells cause this handicap to prevent adequate growth. These problems are largely caused by compaction in piling and spreading the soil layers with rubber tire equipment. The study will determine how soon compaction will be overcome and whether planting grass and legumes will be necessary to loosen the soil.
- Variations in thickness of A and B horizon topsoils will be studied versus crop performance.

If recovery tests are successful during the moratorium, and previous studies give hope that they

will be, then prime lands may be strip mined provided they are recovered by sound procedures. If tests are not successful, then prime farmlands will have been preserved instead of degraded. This is consistent with USDA policy that prime farmlands should be preserved and with the EIS requirements to evaluate proposed changes to prime farmlands in Federal programs.

° Even after this experimental work has been completed, it still isn't known whether the productivity levels can be obtained. At this time, estimates of the time frame required to achieve expected productivity may be 10 to 30 years. [Pages 9-12.]

* * *

A ban on surface coal mining, summarized nationally by major coal region in the U.S. provided in Table 2, would result in:

° Annual production impacts of 74.3 million tons, or 18.6% of strip mining production, or 10.1% of the total U.S. coal production in the first year of enactment. Total prime farmland involved would be 21,800 acres or .006% of total prime farmland.

. . . .

° In the Illinois, Southeastern Indiana, Western Kentucky coal fields, where the impacts are likely to be the most severe, annual production impacts of 44.5 million tons, or 49.4% of strip mining production in those States and 10 billion tons of strippable reserves in those States would be experienced in the first year. Prime farmland involved would be 13,800 acres, or .0005% of total prime farmland. [Pages 17-18.]

* * *

If mining were permitted to continue on prime farmlands,

- Annual prime farmland disturbed would be 21,800 acres, or .006% of the total prime farmlands based on current levels of production. This amounts to less than .006% of all prime farmland acreage under cultivation of all crops in 1976. Even if the entire 21,800 acres were assumed to come out of corn production, the projected U.S. corn production in the 1976/77 crop year would be less than .04%.

A moratorium on surface mining with a grandfather clause for existing mines would result in:

- No coal production losses from existing mines but from planned new production scheduled to come on line *within the first year of enactment*, 10.4 million tons or 9.2% of new production would be affected. These impacts are understated because they do not include second, third, and fourth year impacts. Planned new production for 1978 and 1979 will also be affected. Coal production impacts for 1980 and beyond will not be as significant as those experienced in the earlier years as coal production shifts to non-prime lands.
- Reserve losses would be the same as those experienced under a ban during the period of the moratorium.

Finally, it should be noted that in an analysis completed last year by an eminent agricultural economist, Earl Heady of Iowa State, in cooperation with USDA and Interior, it was found:

- that the supply of U.S. farmland will be adequate to meet domestic needs and provide supplies for export through the year 2000.
- though the adequacy of food supply was found to vary according to different assumptions about export levels and conservation standards for land and water, availability of farmland was not a serious constraint in any of the scenarios analyzed.

The Economic Research Service currently reports, for example, that ending stocks of wheat in the U.S. will increase wheat from 339 million bu. in 1973/74 to 1,095 million bu. in 1976/77. For the same period, ending stocks of rice are projected to increase rice production from 7.8 million cwt. to 49.6 million cwt., and ending stocks of feed grains will result in an increase of the same from 23.7 short tons to 27.3 short tons. [Pages 18-19.]

* * *

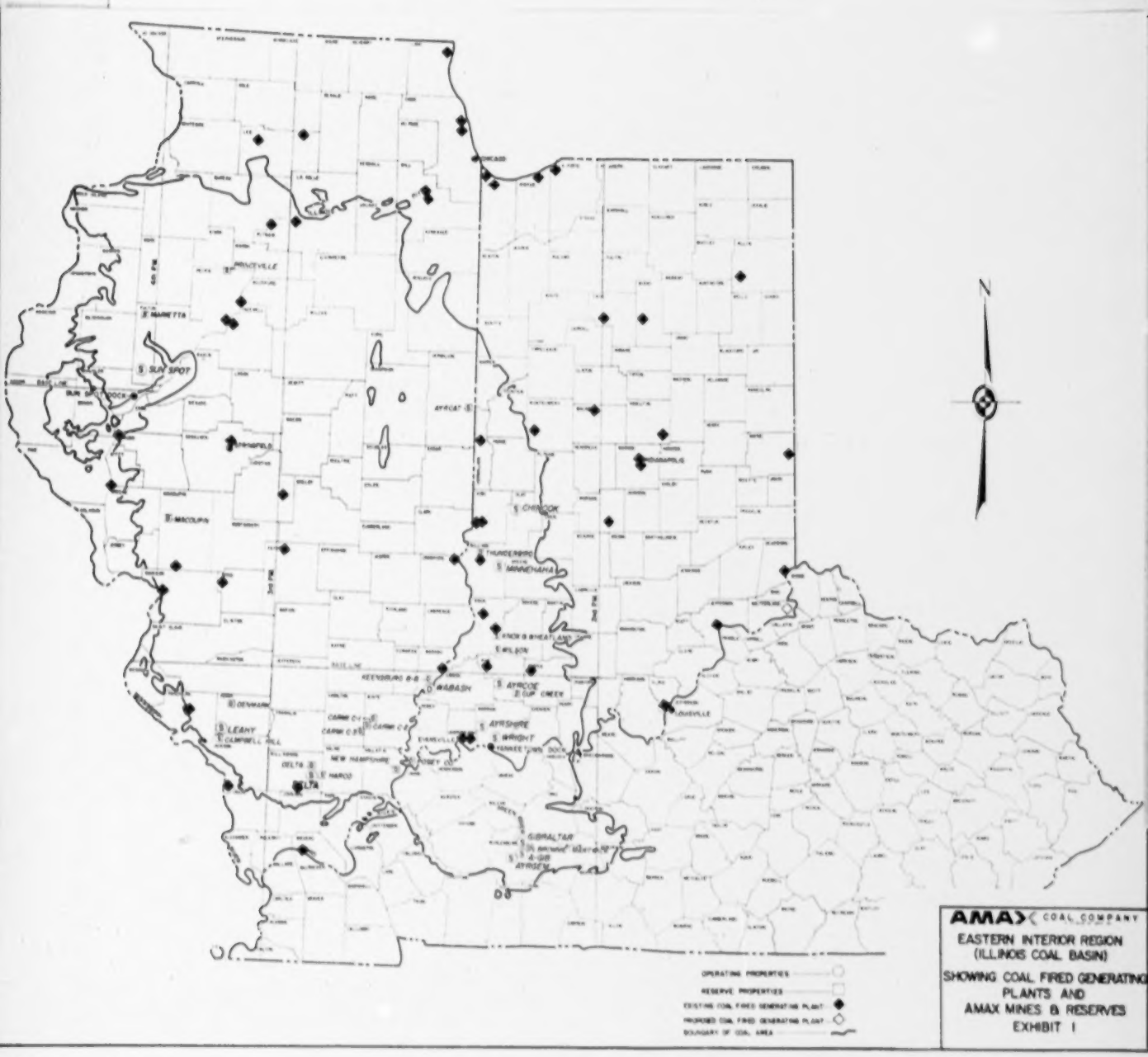
Summary Impacts on Long Term agricultural capacity if no moratorium or ban is imposed

° The fact that some prime farmland will be taken out of production for a period of time, or will be able to support diminished production levels for an additional period, should be balanced against the social utility of mining the strippable coal reserves underlying that land. As a practical matter, the economic balance is not really at issue. If one assumes that the market price of a given commodity bears some relationship to its economic and social value to society, the social investment decision for most of the Nation's coal fields will almost always favor the coal. In the most simple terms, the fact is that the price utility and other major coal users are willing to pay for the resource will normally far exceed the long term income potential of a given plot of land for agricultural production.

Capitalized at 5%, the value of an acre of prime farmland for agricultural production will generally not exceed $600 in Illinois. This assumes a long term net return for corn production of approximately $.25 per bushel at sustained yields of 120 bushels per acre. This compares with an average return of at least $12,000 -

$18,000 per acre for surface coal production in Illinois assuming a net return of $2-$3 per ton at an average recovery factor of approximately 6,120 tons per acre.

° With regard to food production impacts, even assuming a worst case senario (sic) in which the entire 13,800 acres of prime farmland annually affected by surface mining in the Illinois, Indiana, Western Kentucky coal fields were lost permanently to farm production, total acreage losses over a 30 year period would amount to 414,000 acres. Further assuming that the entire impact of the loss would be on corn production, the total production loss in the 30th year would be less than 1% of national 1976/1977 yields. [Page 21.]

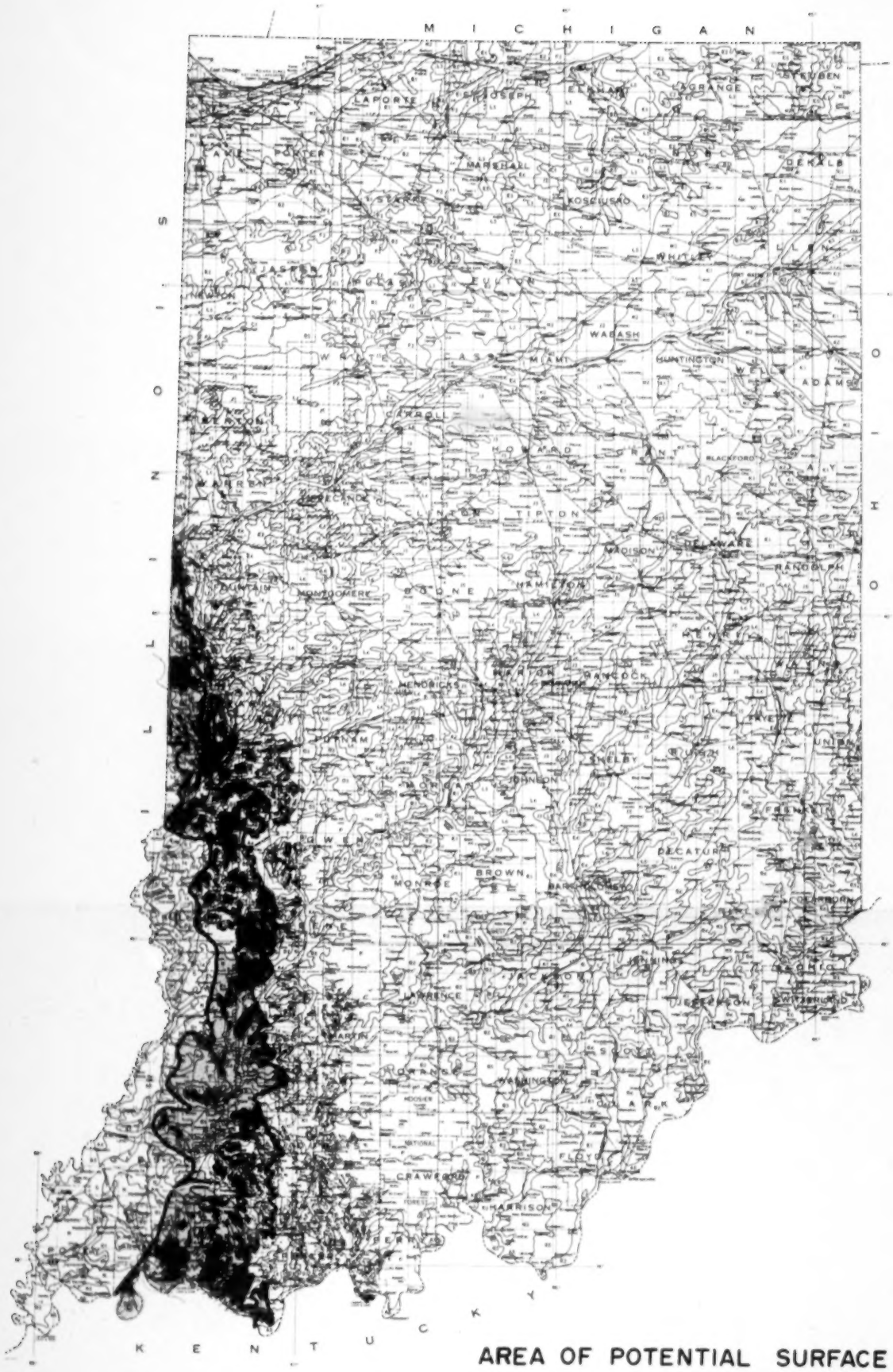


AMAX COAL COMPANY

EASTERN INTERIOR REGION
(ILLINOIS COAL BASIN)

SHOWING COAL FIRED GENERATING
PLANTS AND
AMAX MINES & RESERVES

EXHIBIT 1


M I C H I G A N
I L L I N O I S
O H I O
K E N T U C K Y
LAPORTE
ST. JOSEPH
ELKHART
STEUBEN
LAGRANGE
DEKALB
MARSHALL
KOSCIUSKO
WHITLEY
WABASH
HUNTINGTON
ADAMS
CARROLL
HOWARD
BLACKFORD
TIPTON
MADISON
DELAWARE
RANDOLPH
MONTGOMERY
BOONE
HAMILTON
HENDRICKS
MARION
HANCOCK
SHELBY
JOHNSON
UNION
FRANKLIN
DECATUR
BROWN
MONROE
JENNINGS
RIPLEY
DEARBORN
OHIO
LAWRENCE
SWITZERLAND
WASHINGTON
CRAWFORD
HARRISON
N
AREA OF POTENTIAL SURFACE MINING
AND
LOCATION OF PRIME FARMLAND
AREA OF POTENTIAL SURFACE MINING
MINED OUT AREAS
EXHIBIT 2

AREA OF
POTENTIAL
UNDERGROUND MINING

MINED OUT AREA

AREA OF POTENTIAL
UNDERGROUND MINING

EXHIBIT 3

PRIME FARMLAND OF INDIANA

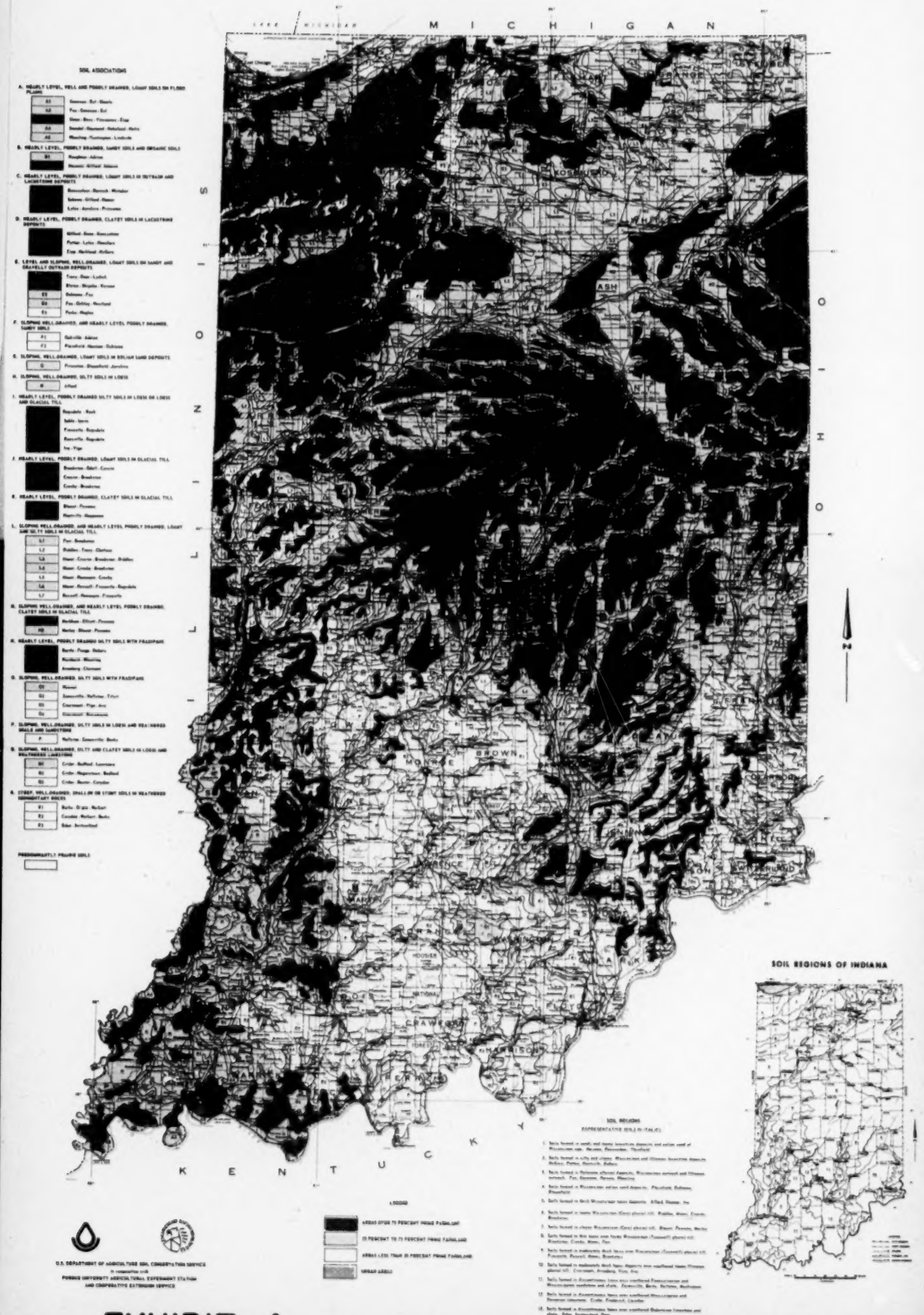


EXHIBIT 4

EXHIBIT 5

AFFIDAVIT OF CHARLES E. WIER

Charles E. Wier, being first duly sworn, states:

1. I am employed by AMAX Coal Company, a Division of AMAX Inc. in the position of Senior Manager-Exploration.

2. I received a Ph.D. in 1955 from Indiana University in Economic Geology. I was employed jointly by the Indiana Geological Survey and the Department of Geology and when I left these employments in 1974, I held the positions of Head of the Coal Section of the Indiana Geological Survey and was Professor of Geology in the Department of Geology at Indiana University. Thereafter, I was employed by AMAX Inc. in the International Group in coal and diamond exploration in Africa. In March 1976, I became employed by AMAX Coal Company in my present position. I have authored 30 professional publications concerning Indiana coal and in my employment, I had direct experience in the accumulation and distribution of data concerning coal in the State of Indiana.

3. Based on my educational background, and my work experience within the State of Indiana, I have had prepared subject to my direction and control Exhibits 1, 2 and 3.

4. Exhibit 1 sets forth by the heavy dark boundary, the Eastern Interior Region of coal reserves within Illinois, Indiana and western Kentucky. This coal area is also known as the Illinois Coal Basin. The basin is a shallow, sedimentary and structural basin wherein the rocks (including coal seams) dip toward the center of the basin in southeastern Illinois. Several individual coal seams extend over much of the total basin in the configuration of a shallow saucer. Thus, a coal seam in southwestern Indiana dips toward the southwest, toward the center of the basin in Illinois. The same coal seam in western Illinois, in the vicinity of East St. Louis dips to

the southeast towards the center of the basin. Surface mining in the basin occurs along the periphery of the basin in Indiana, Illinois and western Kentucky where the coal seams come to the surface. These seams are covered with 300 to more than 1000 feet of sandstone and shale in the center area of the basin. Thus, in the center area of the basin these coal seams cannot be mined by surface mining methods, but only by underground methods.

5. The area of the Illinois Basin within Indiana in which potential surface minable reserves are located is set forth on Exhibit 2 within the area outlined by the dark black line. The dark black spots within the outlined area are the mined-out areas. In the Indiana portion of the Illinois Basin, coal dips to the southwest at about 20 feet per mile. Thus, the outcrop of the lower most coals are to the east of the outcrop of the higher coals. The potential area for surface mining has been outlined on Exhibit 2 by constructing a line along the outcrop of the lowest strippable coal and a line west of the outcrop of the lowest strippable coal and a line west of the outcrop of the upper most strippable coal. These are facts generally known based upon prior geological surveys. The area shown on Exhibit 2 was constructed assuming that nearly all of the future surface mining will be in coal seams named III, IV, V, VI and VII. There are other coals that have an outcrop area to the east of these and that have been mined on a small scale in past years. These lower coals occur in restricted areas and are not included in the surface mine area on the map. Only small amounts of coal are available for future mining outside of the area outlined with the black line on Exhibit 2. The east line of Exhibit 2 showing the area for potential surface mining in Indiana is the crop line of Coal III and the west line shows the limit of the area where Coal VII is less than 150 feet deep. Because the depth of these seams from the surface are on the order of 100 feet or less, this makes all of the area between the two constructed lines potential surface mining areas on each coal seam where it is 0 to 150 feet deep. Much strip

mining has already been done in this area as is shown by the solid black patterns. These black patterns represent areas on each of the Coal Seams III through VII where surface mining has already occurred plus some shallow underground mine areas that intermixed with stripping. Not all of the potential surface minable areas will or can be mined. Man-made structures such as cities, airports, major highways, dams, etc. will prevent mining. It is also unlikely that water saturated river valleys can ever economically support surface mining.

6. Exhibit 3 sets forth the area of Indiana for potential underground mines within the Illinois Basin. The coal seams that are thick enough for mining underground are Coals III, IV, V, VI and VII. Because these coal seams dip to the southwest at about 20 feet per mile, each seam becomes too deep for surface mining within a few miles of the outcrop and west of the past and present surface mining areas. Thus, the potential area for underground mining is west of that area shown as available for surface mining on Exhibit 2. The maximum area available for underground mining overlaps slightly with that available for surface mining. That is, where Coal V crops at the surface, Coal III is about 150 feet deep, which is too deep for surface mining. The area for underground mining colored in blue on Exhibit 3 was constructed by drawing an east line where Coal III is 150 feet deep, which is in the same position as where Coal V crops at the surface. In the area shown on Exhibit 3 as the potential underground mining area, not all of the seams are available for mining in any one place and in some areas possible none of the seams would be economically minable. However, in most of this area there is potential at some time in the future for underground mining in at least one seam.

[Dated: March 6, 1979] /s/ CHARLES E. WIER

EXHIBIT 6

AFFIDAVIT OF ROBERT L. MAJOR

Robert L. Major, being first duly sworn, states:

1. I am employed by AMAX Coal Company, a Division of AMAX Inc., in the position of Manager-Business Research in the Planning Department.

2. I received an A.B. degree in geology from Princeton University in 1960 and a Master of Science degree from The Pennsylvania State University in mineral economics in 1965, and I have done further graduate work at Emory University (1960-61) and the University of Illinois (1967-72) where I completed all necessary course work for a Ph.D. degree in geography with a minor in economics.

3. From April, 1965 until June, 1974, I was employed as a minerals economist at the Illinois State Geological Survey.

4. From July, 1974 until April, 1976, I was employed as a resources economist by Battelle Columbus Laboratories in Columbus, Ohio with a specialty in energy and coal economics.

5. Thereafter, until December 1976 when I joined AMAX Coal Co., I was employed in the Energy and Environmental Systems Division of Argonne National Laboratory.

6. The extent of coal produced in Indiana and sold within Indiana is set forth in Table I attached hereto which indicates the trends in shipments of Indiana coal to Indiana destinations for a period of 1972-1977 by type of end-use consumers. From this it is clear that the dominant markets for Indiana coal are located within the State and that electric utilities account for the bulk of the sales. The data is based on total coal shipped regardless of the method of mining. As a practical matter, since 99% of the current coal production in Indiana comes from surface mines, almost the entirety of

the coal can be considered as having been mined by the surface mining method.

7. In my position as Manager Business Research, I am in charge of the maintenance of a computer data base which contains the records of coal purchases by electrical utilities in 1977 (the last full year for which data is available at this time). This information is derived from monthly reports filed by individual electric utilities with the Federal Energy Regulatory Commission (FERC). Table II indicates the record of 1977 coal purchases by all Indiana utility plants with a capacity of 25 megawatts or greater.

8. In 1977, the total production of coal in the State of Illinois was 53,880,434 tons, of which 24,291,457 tons were produced by surface mining and the remaining 29,588,977 tons were produced by underground mining. (Source: *Illinois Coal Facts*, published by the Illinois Coal Association, 1979.)

9. The source of the data on Table I and Table II are indicated on the Tables and are sources generally used by the business community and the federal government for research and planning in making business and policy decisions.

[Dated: March 7, 1979] /s/ ROBERT L. MAJOR

Table I

Trends in Indiana Coal Shipments to Indiana Destinations, 1972-1977

(000 Tons)

	1972	1973	1974	1975	1976	1977
Electric Utilities	15,344	15,596	15,741	17,222	17,448	17,775
Coke & Gas Plants	-	-	-	-	-	4
Retail Dealers	278	109	153	416	222	42
Industrial	4,804	4,129	3,246	2,735	2,963	3,380
Total	20,426	19,834	19,140	20,373	20,633	21,201

(Percent of Total)

Electric Utilities	75.1	78.6	82.2	84.5	84.6	83.8
Coke & Gas Plants	-	-	-	-	-	0.1
Retail Dealers	1.4	0.5	0.8	2.0	1.1	0.2
Industrial	23.5	20.8	17.0	13.4	14.4	15.9
Indiana Coal Shipments to Indiana Customers as Percentage of Indiana Shipments to all Customers	78.3	79.3	80.0	81.1	80.6	81.5

Source: U.S. Bureau of Mines/Department of Energy, Bituminous Coal and Lignite Distribution reports, 1972-1977.

Table II

Indiana Coal Shipments to Indiana Utilities, 1977

Utility	Plant	000 Tons
Crawfordsville	Crawfordsville	47
Frankfort	Frankfort	24
Hoosier Energy	Ratts	574
IMEC	Breed	952
IKEC	Clifty Creek	1,393
IPALCO	Stout	1,725
IPALCO	Pritchard	599
IPALCO	Petersburg	2,391
(IPALCO TOTAL)		(5,075)
NIPSCO	Bailly	763
NIPSCO	Mitchell	82
NIPSCO	Michigan City	23
(NIPSCO TOTAL)		(867)
Peru	Peru	45
PSI	Edwardsport	258
PSI	Gibson	941
PSI	Noblesville	104
PSI	Gallagher	984
PSI	Wabash River	1,717
PSI	Cayuga	2,493
(PSI TOTAL)		(6,496)
Richmond P&L	Whitewater	183
SIGECO	Culley	1,351
SIGECO	Warrick	2,199
(SIGECO TOTAL)		(3,550)
INDIANA, TOTAL		19,283

Source: AMAX Data Base - Based on FERC Form 423 data.

EXHIBIT 11

AFFIDAVIT OF GILBERT S. GRAVES

Alcoa is and has been since July 1978 a member of the Indiana Coal Association.

I am employed as Administrative Manager at Alcoa's Warrick Operations which is an aluminum plant located in Warrick County, Indiana. The Warrick Operations consist of: ownership of three and one-half power generating units producing 582 megawatts; a six pot line aluminum smelter; and aluminum ingot plant; and an aluminum fabricating plant. As of January 1, 1979, Alcoa employed over 3,500 people at the Warrick Operations.

I was familiar with the process by which the present site of Warrick Operations was selected in 1957 for a new aluminum plant. While there are diverse factors that must be considered in making an aluminum plant site selection including, but not limited to, access to water, raw materials and a stable labor work force, the principal reason why Warrick County, Indiana was chosen was its close proximinty to a reliable and inexpensive source of energy—coal.

Since Warrick Operations was designed to consume over two million tons of coal annually, Alcoa needed to find a plant site with large quantities of suitable coal reserves. Accordingly, Alcoa acquired in 1957 about a 45 year supply of coal before final arrangements were concluded on the Warrick Operations plant and construction began. Conversely, if Warrick County and the surrounding environs did not contain significant quantities of coal reserves, Warrick County would not have been picked as the site for Alcoa's new aluminum plant.

[Dated: March 5, 1979] /s/ GILBERT S. GRAVES

EXHIBIT 12

AFFIDAVIT OF WILLIAM M. KESTER, JR.

William M. Kester, Jr., being first duly sworn states:

1. I am manager of Underground Mine Planning for AMAX Coal Company, a Division of AMAX Inc.

2. I have been in underground planning from 1966 to the present and I began working in the coal industry in 1953.

3. I received a Bachelor of Science Degree in mining engineering from West Virginia University in 1962 and a Master of Science in mining engineering from West Virginia University in 1966, and I have received further graduate school training in geophysics and geology.

4. From 1963 to 1968 I worked with Consolidation Coal Company in mining engineering and planning as well as projection. In 1968 I began working with Humble Oil Company [Exxon] and my last position was that of head of underground mining engineering when I left to come with AMAX.

5. If the 1977 Surface Act increases the cost of surface mining coal to the extent that mining by the underground method is made more competitive, and there becomes a reason to shift to underground mining of coal, it is unlikely such a shift would take place to underground coal mining in Indiana. Rather such a shift would be to underground coal mining in Illinois or in western Kentucky. This opinion is based upon by background, training and experience in the underground coal mining industry in Illinois and Indiana, and upon the following.

6. The coal beds in Indiana are of Pennsylvanian age and are a part of what is called the Eastern Interior Coal Province which encompasses most of Illinois, the southwestern extremity of Indiana and western Kentucky. The deposition was thought to have occurred by sediments being deposited from structural highs in the west and the east.

7. The portion of the province lying in Indiana is actually the very most eastern fringe of the basin. The western fringe of the basin occurs east of St. Louis in Illinois, generally slightly east of the Illinois River drainage area. The center of the basin occurs on a structural low, running roughly north-south near McCleansboro, Illinois and through the most southwestern point of Indiana.

8. Underground production prior to 1950 was fairly prominent in Indiana. Since that time underground production has continually decreased until at the present time it is almost inconsequential.

9. Several deep operations continued into the 1960's and 1970's, as the King Station Mine operated by Old Ben Coal Corporation and the Thunderbird Mine in Sullivan County operated by AMAX Coal Company. One deep mine—V-Day Coal Company has also operated intermittently. Each of the above deep mines are now idle, demonstrating one of the problems faced for deep mines in Indiana. Each of the mines was closed primarily due to economic and geological problems. Kings Station ceased operation partly due to adverse roof conditions. The Thunderbird Mine encountered difficult roof conditions, sulfurballs as well as erratic coal thickness. Conditions were less than desirable in both No. 6 and No. 5 seams. The reserves in the Thunderbird Mine were never exhausted and economic consideration, due to the above, dictated closure. The V-Day Coal Mine operated intermittently from 1960 through approximately 1972 but was closed in part due to geological conditions and increased cost.

10. At the present time there are only four underground coal mines open in Indiana. Three of them have inconsequential production, and the fourth, Squaw Creek's Spur Mine which accounted for 60% of the total underground production in Indiana in 1978, is a developmental mine whereby attempts are being made to solve roof condition related problems.

11. Conclusions as to the reasons for the absence of underground mining activities in Indiana in spite of the substantial estimated "underground mineable" reserves are:

a. The depositional environment is more stable in the central part of the Eastern Interior Basin. The odds are more favorable for finding extensive reserves of thick, cleaner seams in the Illinois and western Kentucky portion of the basin.

b. Many of the seams in Indiana are thinner and multi-bedded with numerous shale partings in several seams. The seams in Illinois and in western Kentucky have greater thickness and better conditions which are more conducive to favorable deep mining ventures.

c. One of the basic problems in establishing viable deep mining ventures in Indiana is the lack of available large extensive, thick, deep mineable coals having the desirable roof and floor conditions required to commit the large capital expenditures required for deep mining operations. As an example, I was previously employed by a large energy company prior to joining the AMAX organization. This company was interested in a resource base capable of supporting gasification and liquefaction projects which would utilize Indiana coal resources in a manner compatible with environmental concerns. Several such areas are located in Illinois, but not one reserve area was located in Indiana which could satisfactorily meet project criteria through the period of 1968 to 1974.

d. Past experiences in deep mining ventures in Indiana led to a stigma that deep mining conditions in general are less desirable than those encountered in Illinois. Several geologic anomalies contribute to such reputation or conclusion as:

(1) the fault systems which are known to exist parallel to the Wabash River—the New Harmony Fault is an example;

(2) the highly undulatory nature of the No. 5 seam which has been encountered in several active and potential deep mining areas;

(3) the occurrences of contemporaneous or post depositional channels disrupting the Seelyville coal and the interplay of such channel deposits upon predicting adverse roof conditions mentioned above.

12. The utilities which purchase coal under long term contracts, generally require blocks of coal containing up to 50 million tons. These are not available in the Indiana underground reserves.

13. In general, the assimilation of the geological data relative to deep mineable coals in Indiana and in light of past and present experience, suggest that as economical surface mines are depleted or phased out for whatever reason, the emphasis will be upon the development of the Illinois deep mine coals prior to development of Indiana underground coals.

14. It takes up to eight to nine years to develop a deep mine including exploration drilling, evaluation, mine design, approval of permits, mining construction and production build-up. In the event of reduction of surface mine production in Indiana extensive time would be required before recoupment would be possible from underground operations.

[Dated: March 2, 1979] /s/ WILLIAM M. KESTER, JR.

EXHIBIT 13

AFFIDAVIT OF RALPH E. CLARK

RALPH E. CLARK, being first duly sworn upon his oath states as follows:

1. I am employed by the State of Indiana as Director of the Bureau of Mines and Mining of the Indiana Division of Labor.

2. As a part of the official duties of the Bureau, records are kept concerning production of coal within the State of Indiana and based on these records, the following is the tonage reported by coal companies as having been produced within the State of Indiana and within various specific counties. The total figure for the State of Indiana is estimated due to the failure of several companies to report tonage or due to instances where the companies refuse to report tonage.

	TONS 1977	TONS 1978
STATEWIDE ANNUAL PRODUCTION		
Underground Method	524,852	587,853
Surface Method	27,470,394	23,354,380
COUNTIES - SURFACE MINING		
Clay:		
AMAX	1,124,129	1,300,823
Peabody	-0-	-0-
TOTAL	1,398,183	1,527,249

Green:		
Peabody	913,725	1,428,693
TOTAL	1,009,749	1,554,142
Pike:		
AMAX	613,766	76,286
Old Ben	4,812,698	3,915,301
TOTAL	6,777,434	5,427,953
Sullivan:		
AMAX	1,773,183	1,317,932
Peabody	654,284	577,254
TOTAL	3,357,502	1,962,618
Vermillion:		
Peabody	2,376,732	1,947,341
TOTAL	2,419,737	1,989,677
Warrick:		
AMAX	3,365,044	2,469,624
Peabody	1,115,500	2,552,602
Squaw Creek [ALCOA and Peabody]	3,343,728	1,317,025
TOTAL	8,979,398	6,851,427

4. Further Affiant sayeth not.

[Dated: March 5, 1979] /s/ RALPH E. CLARK

EXHIBIT 14

PLAINTIFFS' REQUEST FOR ADMISSIONS

Come now plaintiffs in the above entitled consolidated actions and request that the defendants admit the following facts for the purpose of this action and that a response be filed to this request within thirty (30) days as required by the Federal Rules of Civil Procedure or in such shorter time as the Court might order:

1. That the attached Exhibit 1 consisting of eleven pages are genuine, true and correct copies of an official publication of the United States Department of Agriculture.

2. That the attached exhibit contains statistics which are reliable and generally used by persons working in agricultural related business.

STATE OF INDIANA

/s/ DONALD P. BOGARD
Chief Counsel, Office of
the Attorney General

ICE MILLER DONADIO & RYAN

/s/ G. DANIEL KELLEY, JR.
Attorney for Plaintiffs

[Filed: March 9, 1979]

No. A 78-1

Indiana Crop and Livestock Statistics

June 1978

Annual Crop and Livestock Summary 1977

UNITED STATES DEPARTMENT OF AGRICULTURE
STATISTICS; Economics, Statistics, and Cooperatives Service

cooperating with
PURDUE UNIVERSITY
Agricultural Experiment Station • Department of Agricultural Statistics, West Lafayette, IN, 47

INDIANA
ANNUAL CROP AND LIVESTOCK SUMMARY
1977
Issued Cooperatively By

U. S. DEPARTMENT OF AGRICULTURE

BOB BERGLAND, *Secretary of Agriculture*
WILLIAM E. KIBLER, *Deputy Administrator, STATISTICS; Economics, Statistics, and Cooperatives Service*

PURDUE UNIVERSITY

RICHARD L. KOHLS, *Dean of Agriculture*
B. J. LISKA, *Director of Agricultural Experiment Station*

Compiled and Prepared by
INDIANA CROP AND LIVESTOCK REPORTING SERVICE
Agricultural Administration Building
Purdue University
West Lafayette, Indiana 47907
Telephone: (317)-749-2429

EARL L. PARK, *Agricultural Statistician in Charge*

For statistical purposes, the counties of Indiana are grouped into nine Crop Reporting Districts (shown on the map at right). These groupings represent divisions of approximately equal size with similar soils, growing conditions and types of farming.

Crop Reporting Districts are used in the compilation of most reports. It is not possible to collect sufficient data for each county to make county estimates on a timely basis. It is possible to summarize data at a district level and weight districts together by production percentages to arrive at the best State estimates.

Many data series in this bulletin present estimates for Crop Reporting Districts. Some series are further broken down into county estimates within districts.

Indiana Crop Reporting Districts

FOREWORD

This summary is the result of the continuing cooperation between the farmer and agribusinessmen of the State of Indiana, the Agricultural Experiment Station, Purdue University, and the Economics, Statistics, and Cooperatives Service of the U.S. Department of Agriculture. It provides the official estimates of agricultural production for 1977 together with comparison back through 1975. Included are State estimates of acreage, yield, production, disposition, and other information related to crops; production and inventory numbers of livestock, including dairy and poultry; price and farm income data; labor and wage rates; and weather and crop progress data. County estimates for major crop and livestock items are also included. Historic State data from 1866 through 1974 and county crop estimates from 1923 through 1974 are also available upon request.

Farming is such an integral part of the national and world economy that it can not function effectively without reliable information on which planning and marketing decisions can be based. To meet the needs of the farmers and others involved in agriculture, statistics are made available throughout the year in the form of weekly, monthly, and quarterly reports. The reports and approximate dates of release are shown on the inside back cover of this publication.

I wish to acknowledge the valuable assistance of the many Indiana farmers and agribusinessmen who voluntarily provide the raw data from which the official estimates are set. A special thanks is extended to our field enumerators and telephone enumerators who are a vital link in our data gathering process, and to all members of the office who had a part in carrying out the surveys, evaluating the results and establishing the estimates which are presented in this publication.

Earl L. Park
Statistician, In Charge

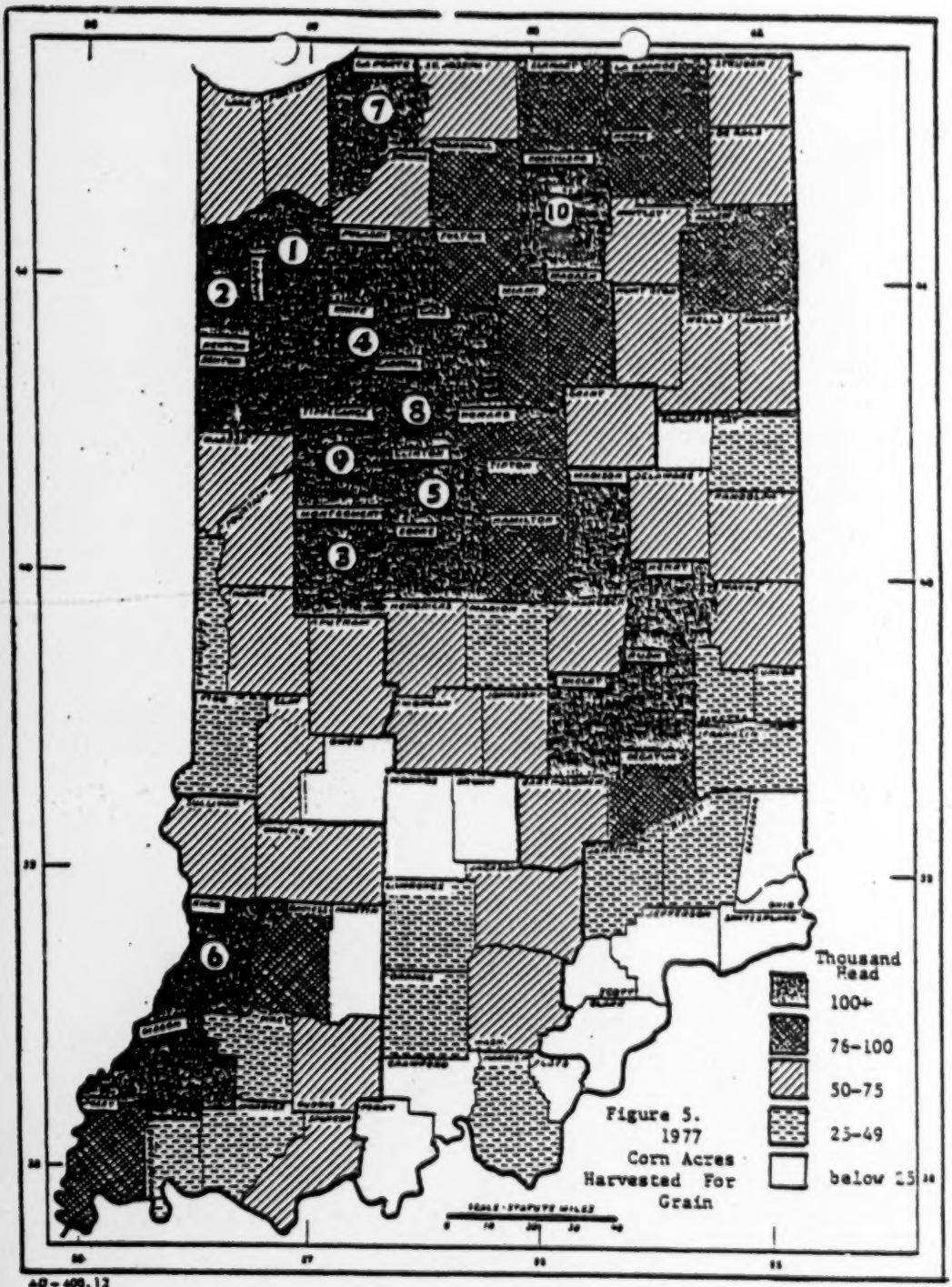


Figure 5.
1977
Corn Acres
Harvested For
Grain

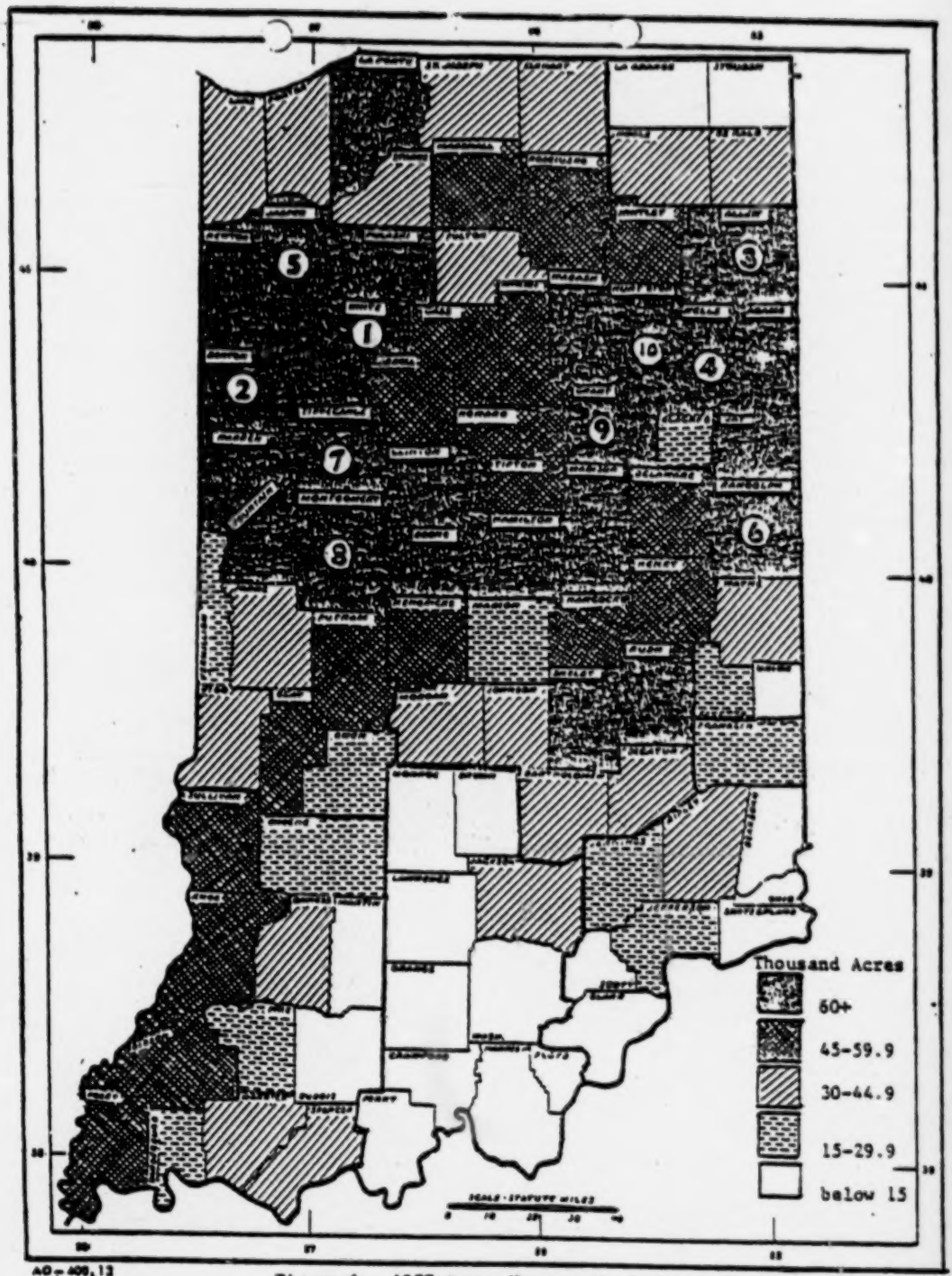
AD-409-12
4-58

CORN FOR GRAIN: ACREAGE, YIELD AN PRODUCTION BY COUNTIES, INDIANA, 1975 AND 1976 REVISED, AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1975	1976	1977	1975	1976	1977	1975	1976	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
1.	BENTON	118.5	121.3	118.4	118	115	105	13,989.9	13,996.1	12,343.2
	JASPER	153.2	161.8	176.7	106	107	95	16,223.7	17,419.0	16,865.8
	LAKE	68.7	75.1	69.8	100	113	106	6,883.4	8,513.4	7,298.6
	LA PORTE	121.4	132.0	128.8	96	107	101	11,681.4	14,162.0	12,967.8
	NEWTON	131.1	147.8	144.7	116	124	113	15,193.0	18,151.8	16,760.1
	PORTER	66.9	76.3	70.7	95	111	103	6,539.2	8,484.9	7,250.8
	PULASKI	114.1	124.5	118.8	96	113	112	10,943.1	14,113.4	13,148.1
	STARKE	68.5	73.5	69.7	98	109	108	6,159.1	8,034.4	7,502.1
	WHITE	135.8	144.8	144.7	105	111	110	14,181.4	16,032.4	15,929.8
	TOTAL	979.8	1074.7	1048.7	103.8	112.5	105.3	101,734.1	120,917.4	109,666.3
2.	CARROLL	124.6	122.5	124.6	138	119	106	14,234.3	14,630.6	13,158.2
	CASS	97.8	110.1	102.2	114	104	97	11,138.9	11,474.0	9,858.7
	ELKHART	75.3	80.1	78.2	89	105	105	6,695.3	8,431.6	8,178.8
	FULTON	77.9	86.8	80.6	96	115	94	8,093.8	9,923.1	7,611.4
	KOSCIUSKO	113.8	119.9	121.9	98	95	104	10,166.3	11,407.5	12,625.5
	MARSHALL	99.1	98.1	86.3	86	107	99	7,311.8	9,944.6	8,500.1
	MIAMI	98.3	88.5	85.5	106	109	93	8,503.7	9,674.1	7,987.2
	ST. JOSEPH	69.7	75.8	73.3	84	109	100	5,849.2	8,289.6	7,294.1
	WABASH	83.6	93.7	86.1	98	105	96	8,185.6	9,843.2	8,393.0
	TOTAL	792.3	866.7	838.7	99.6	107.7	99.7	78,778.9	93,368.5	83,607.0
3.	ADAMS	58.7	64.8	59.4	78	97	96	3,965.2	6,214.6	5,790.3
	ALLEN	87.6	94.8	89.8	88	91	96	6,953.1	8,562.8	8,675.7
	DE KALB	66.9	69.8	58.1	84	95	93	3,768.8	6,738.1	4,648.2
	HUNTINGTON	59.4	68.5	60.8	88	105	107	5,222.2	7,210.5	6,397.1
	LAGRANGE	78.6	74.4	88.7	94	105	112	6,830.8	7,831.6	9,913.6
	NOBLE	65.3	69.7	78.7	98	103	111	5,871.4	7,196.8	8,719.5
	STEUBEN	62.5	66.4	58.1	74	93	99	3,142.1	6,325.6	6,934.6
	WELLS	63.4	69.8	63.1	86	107	106	5,447.2	7,059.5	6,791.7
	WHITLEY	94.5	82.3	88.7	82	103	102	6,628.4	8,431.8	9,163.6
	TOTAL	566.3	594.9	591.8	83.5	100.1	103.3	45,628.8	59,569.3	61,157.5
4.	CLAY	57.9	66.3	65.6	98	101	101	5,668.4	6,710.5	6,584.5
	FOUNTAIN	64.5	75.5	73.7	116	124	111	7,483.7	9,339.9	8,157.1
	MONTGOMERY	117.4	137.6	142.9	112	114	108	13,138.9	15,748.5	15,380.9
	OWEN	16.4	19.8	19.6	98	105	112	1,674.4	2,089.8	2,189.2
	PARKE	55.1	64.1	65.5	110	114	106	6,059.2	7,344.2	6,784.8
	PUTNAM	66.5	73.8	72.8	101	117	110	6,711.9	8,678.9	7,987.6
	TIPPECANOE	107.2	123.9	123.6	112	108	87	11,994.9	13,414.3	10,753.5
	VERMILLION	32.0	36.3	37.2	112	124	108	3,580.8	4,482.4	4,038.8
	VIGO	62.6	66.5	66.9	104	95	91	6,426.2	6,324.1	6,248.1
	WARREN	41.1	64.3	68.2	126	119	98	7,691.2	8,157.3	6,648.1
	TOTAL	622.7	718.9	716.8	110.1	112.4	101.7	68,543.1	80,281.1	72,821.8
5.	BARTHOLOMEW	58.5	66.7	71.3	88	111	103	6,515.7	7,644.8	7,312.3
	BOONE	88.8	99.8	102.5	116	114	111	10,036.0	11,614.4	11,344.7
	CLINTON	118.8	137.7	132.0	124	115	103	14,717.1	15,844.5	13,537.5
	DECATUR	66.5	92.5	89.5	87	123	116	7,344.5	11,324.5	10,562.0
	GRANT	66.8	78.4	71.2	118	107	104	7,341.0	8,219.7	7,374.3
	HAMILTON	73.5	82.7	86.1	108	113	97	7,938.6	9,374.9	8,112.7
	HANCOCK	63.7	71.7	71.5	94	115	95	5,982.1	8,273.1	6,824.6
	HENDRICKS	68.8	72.7	73.2	102	128	109	5,916.1	8,748.4	7,953.1
	HOWARD	78.3	83.6	75.7	122	111	91	9,299.7	9,245.4	6,918.0
	JOHNSON	53.2	58.9	60.5	99	117	84	5,261.9	6,915.4	5,098.9
	MADISON	98.7	111.1	118.7	105	107	84	10,143.4	11,919.4	10,084.0
	MARION	24.7	29.2	30.5	84	108	105	2,072.4	3,162.3	3,189.9
	MORGAN	45.8	54.1	53.9	94	118	102	4,225.9	6,484.6	5,473.1
	RUSH	93.7	97.9	101.6	98	125	121	8,624.9	12,188.8	12,274.8
	SHELBY	108.4	112.2	110.9	88	115	100	8,828.7	12,944.2	11,035.7
	TIPTON	64.4	76.5	77.1	120	124	104	7,728.4	9,444.4	8,298.8
	TOTAL	1162.8	1325.9	1329.2	103.8	115.5	102.2	119,753.4	153,194.2	135,298.2
6.	BLACKFORD	22.8	24.1	24.1	97	115	110	2,259.6	3,011.5	2,442.9
	DELAWARE	67.7	74.5	72.8	104	103	95	7,034.1	7,691.3	6,944.7
	FAYETTE	36.3	38.2	40.8	80	105	96	2,901.2	4,021.1	3,899.2
	HENRY	88.7	93.9	100.1	85	110	93	6,852.9	10,349.4	9,351.2
	JAY	37.7	41.6	42.6	83	97	83	3,128.1	4,061.5	3,547.1
	RANDOLPH	68.2	74.6	71.3	84	94	85	5,859.6	7,033.1	6,081.9
	UNION	32.5	35.6	34.1	108	118	108	3,546.9	4,215.8	3,670.3
	WAYNE	68.4	67.6	69.3	88	103	100	6,027.6	6,979.0	6,896.1
	TOTAL	488.3	492.3	484.3	88.7	104.7	94.7	38,657.7	47,381.7	43,037.8

Table 10. CORN FOR GRAIN: ACREAGE, YIELD AND PRODUCTION BY COUNTIES, INDIANA, 1975 AND 1976 REVISED, AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1975	1976	1977	1975	1976	1977	1975	1976	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
7.	DAVIESS	76.3	87.9	84.5	106	130	112	8,080.1	11,387.9	9,485.1
	DUBOIS	57.5	61.4	62.8	96	105	94	5,514.7	6,443.2	6,843.7
	GIBSON	100.8	122.4	118.8	116	117	104	11,644.8	14,278.9	11,418.4
	GREENE	92.5	92.7	88.8	101	96	102	9,297.4	8,829.8	8,892.5
	KNOX	116.0	128.5	129.4	110	128	112	12,747.8	16,347.7	14,453.4
	MARTIN	19.4	21.5	21.4	74	71	93	1,436.2	1,523.3	1,999.1
	PIKE	35.8	41.9	39.7	98	103	91	3,218.9	4,329.7	3,628.1
	PUSEY	83.2	102.1	96.7	100	115	106	9,312.8	11,748.8	9,578.2
	SPENCER	46.4	50.7	56.9	76	83	89	3,523.8	4,207.9	4,341.5
	SULLIVAN	97.3	78.4	66.9	106	111	112	6,068.8	7,834.1	7,449.8
	VANDERBURGH	31.9	30.4	31.8	102	107	114	3,256.7	3,985.3	3,618.5
	WARRICK	37.3	44.5	43.1	92	107	114	3,428.3	4,774.3	4,914.1
	TOTAL	719.8	838.4	796.4	100.8	112.8	105.2	72,523.9	92,893.9	83,764.4
8.	BROWN	2.8	3.4	3.6	78	100	104	218.2	343.4	376.5
	CRAWFORD	6.0	6.7	6.9	68	99	46	359.7	644.4	479.4
	FLOYD	7.1	3.3	3.4	64	101	95	284.4	334.3	324.5
	HARRISON	24.4	28.3	27.9	58	91	102	1,413.8	2,577.9	2,833.8
	JACKSON	63.8	66.7	67.1	71	109	102	4,525.4	7,269.7	6,813.4
	LAWRENCE	27.1	28.5	30.1	73	105	93	1,976.4	3,000.8	2,811.9
	MONROE	9.4	10.8	10.2	84	93	108	788.4	987.8	1,015.8
	ORANGE	25.7	28.4	29.8	70	107	84	1,797.2	3,047.8	2,573.9
	PERRY	12.3	15.2	15.4	80	95	101	983.1	1,292.3	1,544.1
	WASHINGTON	49.8	51.9	54.3	61	105	89	3,034.9	5,441.2	4,852.1
	TOTAL	224.4	245.2	247.7	68.2	103.1	96.2	15,382.1	25,249.2	23,827.6
9.	CLARK	18.3	20.4	21.2	81	92	97	1,480.9	1,879.8	2,045.1
	FLOYD	15.1	19.0	17.8	62	89	94	935.3	1,682.3	1,648.9
	FRANKLIN	48.4	49.3	48.5	86	99	104	3,471.1	4,883.3	5,028.3
	JEFFERSON	18.9	17.8	18.5	72	97	99	1,215.4	1,729.4	1,822.2
	JENNINGS	28.1	31.7	29.4	84	113	89	2,358.1	3,583.5	2,627.1
	OHIO	4.8	5.7	5.6	88	104	104	287.7	594.7	580.8
	RIPLEY	32.1	30.2	34.8	72	107	104	2,309.8	3,883.8	3,681.7
	SCOTT	13.1	14.9	15.3	72	103	115	942.3	1,538.3	1,755.6
	SWITZERLAND	7.8	8.8	7.9	81	91	98	628.6	724.7	778.1
	TOTAL	175.8	199.8	208.2	76.4	101.2	101.4	13,428.4	20,132.7	20,383.8
STATE		5638.8	6388.8	6210.8	98.8	118.8	102.8	551,748.8	692,084.8	633,428.8



AD-408,12
4-58

Figure 6. 1977 Acres Harvested, Soybeans for Beans

TABLE 11. SOYBEANS: ACREAGE, YIELD AND PRODUCTION BY COUNTIES, INDIANA, 1975 AND 1976 REVISED AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1975	1976	1977	1975	1976	1977	1975	1976	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
1.	BENTON	87.9	83.7	94.5	39	36	41	3,352.2	3,043.2	3,984.9
	JASPER	77.2	72.6	82.7	35	32	35	2,676.4	2,337.9	2,929.1
	LAKE	35.5	34.3	39.1	32	38	37	1,125.2	1,033.3	1,441.8
	LA PORTE	55.5	53.7	65.2	32	33	34	1,786.7	1,757.2	2,181.8
	NEWTON	56.4	56.9	63.6	35	32	36	1,955.3	1,832.3	2,315.2
	PORTER	37.1	37.1	44.7	34	33	33	1,249.5	1,233.3	1,451.3
	PULASKI	59.2	64.1	71.7	33	32	39	2,262.8	2,084.2	2,821.7
	STARKE	31.6	29.8	36.3	24	29	24	751.2	572.4	877.4
	WHITE	94.7	88.8	100.2	38	36	39	3,564.5	3,182.5	3,943.2
	TOTAL	545.1	520.2	596.0	34.3	32.6	36.7	18,723.0	17,056.3	21,885.6
2.	CARROLL	53.6	48.8	57.3	41	37	38	2,176.8	1,795.8	2,198.6
	CASS	58.7	48.9	55.2	39	35	39	1,983.7	1,597.3	2,172.3
	ELKHART	34.6	30.7	36.9	33	32	34	1,131.8	972.7	1,273.6
	FULTON	41.8	37.6	44.1	33	30	34	1,366.3	1,113.2	1,518.6
	KOSCIUSKO	52.1	47.5	57.2	32	30	34	1,677.3	1,486.3	1,969.7
	MARSHALL	42.7	37.9	45.9	29	29	34	1,228.6	1,132.4	1,535.4
	MIAMI	45.3	41.6	47.5	46	32	35	1,817.3	1,299.8	1,682.4
	ST. JOSEPH	35.2	31.7	38.8	33	33	34	1,156.6	1,037.3	1,297.9
	WABASH	53.6	50.6	48.2	36	34	48	1,945.1	1,708.3	2,428.3
	TOTAL	409.8	378.9	443.1	35.3	32.4	36.3	14,474.7	12,031.5	16,073.8
3.	ADAMS	46.8	39.7	78.5	26	34	34	1,732.4	2,046.5	2,427.6
	ALLEN	85.9	80.4	93.2	32	32	38	2,755.4	2,547.3	3,576.1
	DE KALB	41.6	37.7	43.8	27	27	30	1,133.2	984.7	1,269.2
	HUNTINGTON	68.6	63.9	76.2	34	32	37	2,344.3	2,057.7	2,848.8
	LAGRANGE	13.7	11.4	13.7	30	31	36	413.9	355.3	498.7
	NOBLE	29.7	25.9	31.1	29	32	35	867.9	820.6	1,101.5
	STEUBEN	13.8	10.7	12.6	24	28	35	334.8	296.6	444.3
	WELLS	78.9	73.0	87.1	34	34	38	2,657.2	2,582.4	3,342.0
	WHITLEY	42.5	38.9	46.9	30	29	34	1,262.9	1,111.3	1,535.4
	TOTAL	439.9	401.6	473.3	30.7	31.7	36.6	13,512.8	12,734.4	17,043.6
4.	CLAY	45.4	41.8	47.1	36	39	33	1,618.9	1,597.1	1,529.2
	FOUNTAIN	58.5	53.7	65.2	34	36	29	1,999.2	1,952.4	1,868.3
	MONTGOMERY	75.8	67.5	79.8	36	38	37	2,674.4	2,594.4	2,953.5
	OWEN	14.5	13.2	15.7	32	31	33	453.6	404.5	509.7
	PARKE	46.7	34.3	41.7	34	36	38	1,370.7	1,229.3	1,600.8
	PUTNAM	43.3	38.9	46.3	29	35	35	1,243.8	1,373.9	1,639.9
	TIPPECANOE	71.3	65.4	80.1	38	34	37	2,719.1	2,241.9	2,994.6
	VERMILLION	29.1	21.1	25.2	31	41	37	783.2	854.8	942.1
	VIGO	36.1	33.1	39.1	33	29	33	1,188.3	942.8	1,289.5
	WARREN	68.9	55.7	67.7	38	36	38	2,622.5	2,025.1	2,597.6
	TOTAL	470.8	423.9	507.1	34.8	35.9	35.3	16,371.4	15,236.2	17,896.4
5.	BARTHOLOMEW	36.2	31.9	37.3	26	30	34	950.2	941.3	1,284.4
	BOONE	64.2	58.5	70.3	38	35	40	2,416.5	2,035.8	2,835.7
	CLINTON	71.1	58.6	70.3	39	41	43	2,746.7	2,454.1	3,043.2
	DECATUR	35.7	31.8	38.6	34	45	38	1,202.3	1,420.4	1,481.1
	GRANT	78.9	66.8	78.9	37	34	39	2,598.5	2,289.9	3,105.8
	HAMILTON	58.4	53.7	61.2	38	36	38	2,122.9	1,952.4	2,348.2
	HANCOCK	52.7	47.8	58.0	36	37	37	1,905.4	1,757.6	2,168.4
	HENDRICKS	51.0	45.7	56.4	40	43	42	2,020.7	1,946.4	2,386.8
	HOWARD	52.2	48.6	56.4	43	38	39	2,223.4	1,842.7	2,219.5
	JOHNSON	33.6	29.8	35.2	38	37	34	1,015.1	1,114.4	1,177.5
	MADISON	79.8	61.5	67.6	35	34	36	2,681.5	2,104.2	2,480.6
	MARION	28.2	19.9	24.9	34	32	32	747.7	682.8	755.6
	MORGAN	38.8	27.2	31.4	27	35	31	817.2	946.5	957.7
	RUSH	57.9	53.2	64.1	40	42	43	2,296.1	2,210.5	2,774.8
	SHELBY	56.2	50.4	60.6	34	38	37	1,892.7	1,926.6	2,265.6
	TIPTON	49.3	45.5	52.3	39	36	43	1,929.6	1,654.3	2,269.8
	TOTAL	889.6	731.2	862.6	36.2	37.2	38.9	29,343.9	27,223.8	33,527.5
6.	BLACKFORD	29.8	25.1	29.5	30	31	35	874.1	782.2	1,044.8
	DELAWARE	54.8	52.8	54.9	35	31	37	2,033.8	1,639.2	2,237.-
	FAYETTE	17.9	15.9	19.8	33	37	36	585.1	594.6	691.-
	HENRY	52.2	48.6	55.8	35	34	35	1,889.7	1,573.2	1,948.8
	JAY	66.4	58.-	69.7	31	25	26	2,038.9	1,456.8	1,782.9
	RANDOLPH	82.3	73.7	86.9	35	31	33	2,853.2	2,296.8	2,760.1
	UNION	14.7	11.8	14.2	36	42	38	524.2	496.-	544.8
	WAYNE	35.8	28.9	33.4	30	33	34	1,057.4	945.7	1,150.1
	TOTAL	356.5	313.3	361.6	33.8	31.3	33.5	11,778.4	9,784.1	12,197.7

Table 11. SOYBEANS: ACREAGE, YIELD AND PRODUCTION BY COUNTIES, INDIANA, 1975 AND 1976 REVISED, AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1975	1976	1977	1975	1976	1977	1975	1976	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
7.	DAVIESS	38.8	28.2	33.9	33	38	34	1.006.8	1.083.9	1.134.0
	DUBOIS	13.0	9.9	11.8	26	31	28	334.A	308.5	325.1
	GIBSON	49.4	43.8	53.6	35	37	37	1.737.1	1.676.8	2.003.9
	GREENE	24.8	22.4	27.7	36	35	34	884.4	779.5	926.6
	KNOX	49.5	42.9	52.1	32	40	34	1.569.0	1.693.4	1.794.3
	MARTIN	4.2	3.2	3.8	27	29	33	112.3	92.5	123.-
	PIKE	28.3	18.4	28.1	26	31	25	522.8	511.1	696.4
	POSEY	47.2	41.7	52.8	38	34	40	1.778.6	1.429.5	2.129.8
	SPENCER	41.9	37.8	42.3	29	32	31	1.203.6	1.201.6	1.290.1
	SULLIVAN	48.4	37.3	46.0	38	39	33-	1.838.5	1.483.1	1.493.5
	VANDERBURGH	26.7	23.1	28.8	30	32	38	793.4	731.9	1.105.8
	WARRICK	28.8	28.4	31.3	28	32	35-	798.8	890.1	1.168.6
	TOTAL	377.8	332.3	404.2	31.7	35.2	34.5	11.940.1	11.711.9	13.926.4
8.	BROWN	1.1	1.0	1.1	33	31	33	36.0	31.2	35.7
	CRAWFORD	2.2	2.0	2.2	27	30	29	58.4	59.2	62.4
	FLOYD	1.9	1.7	1.9	20	26	23	37.6	44.9	43.8
	HARRISON	9.9	8.3	9.6	19	27	30	186.3	211.9	283.3
	JACKSON	33.1	29.2	33.6	22	33	33	721.3	975.4	1.136.6
	LAWRENCE	8.3	7.2	8.9	22	24	27	180.9	170.8	238.4
	MONROE	4.4	4.3	5.2	31	30	32	134.7	129.6	163.7
	ORANGE	7.4	5.1	6.3	25	27	30	186.9	139.2	188.9
	PERRY	6.7	4.9	5.7	25	27	29	169.3	132.3	162.8
	WASHINGTON	13.4	12.1	14.4	21	26	27	278.7	314.2	382.5
	TOTAL	88.4	75.5	89.1	22.5	29.1	30.2	1.990.1	2.198.7	2.686.5
9.	CLARK	14.8	11.9	14.5	33	34	32	483.8	407.9	456.5
	DEARBORN	6.3	5.6	6.6	21	36	31	134.2	203.6	201.3
	FRANKLIN	16.9	13.8	16.3	34	34	39	577.6	470.2	641.5
	JEFFERSON	18.3	14.7	17.2	22	30	28	407.9	442.8	473.8
	JENNINGS	25.3	22.8	26.9	22	31	28	563.9	689.6	741.6
	OHIO	1.4	0.9	1.1	21	30	29	29.8	27.1	31.4
	RIPLEY	33.4	29.4	35.1	27	32	33	909.8	946.8	1.139.6
	SCOTT	11.6	9.1	10.8	22	28	33	252.A	255.2	350.6
	SWITZERLAND	4.9	4.0	4.5	23	26	30	111.6	103.9	132.6
	TOTAL	132.9	111.4	133.0	26.1	31.8	31.3	3.471.4	3.543.1	4.168.5
STATE		3630.0	3280.0	3870.0	33.5	34.0	36.0	121.605.0	111.520.0	139.320.0

Table 12. WINTER WHEAT: ACREAGE, YIELD AND PRODUCTION BY COUNTIES, INDIANA, 1978 AND 1978 REVISED, AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1979	1978	1977	1979	1978	1977	1979	1978	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
1.	BENTON	14.7	13.2	11.9	57	63	62	838.0	862.4	738.2
	JASPER	9.7	10.7	8.2	63	62	61	616.5	693.0	534.9
	LAKE	15.5	16.7	12.8	63	68	63	868.7	874.1	517.6
	LA PORTE	25.9	28.9	21.5	66	32	36	1,821.5	867.4	642.0
	NEWTON	7.7	7.8	6.7	52	63	53	403.3	337.9	253.4
	PORTER	17.9	19.8	14.5	39	32	36	698.7	617.5	548.1
	PULASKI	12.8	13.5	11.3	66	36	39	556.5	691.7	438.8
	STARKE	7.0	7.2	5.8	39	33	31	273.2	233.9	179.3
	WHITE	16.5	17.3	13.4	50	37	53	835.5	647.2	706.9
	TOTAL	127.2	135.8	105.3	44.9	36.8	42.3	5,706.1	4,969.5	4,434.8
2.	CARROLL	15.8	19.9	13.8	53	37	49	801.2	632.2	663.3
	CASS	24.8	25.5	18.4	37	35	46	1,355.6	983.7	846.7
	ELKHART	23.5	27.1	21.8	46	36	33	941.4	888.4	718.8
	FULTON	17.7	14.3	14.9	42	35	37	745.4	644.6	548.7
	KOSCIUSKO	28.4	38.7	24.3	45	36	39	1,283.5	1,116.3	943.3
	MARSHALL	16.3	18.8	14.2	48	31	35	952.9	564.3	484.7
	MIAMI	18.4	19.3	14.1	50	37	55	926.1	727.8	881.3
	ST. JOSEPH	23.4	23.5	19.8	37	35	32	865.2	809.7	630.6
	WABASH	23.2	30.1	28.7	44	38	45	1,024.7	1,155.7	1,193.9
	TOTAL	189.9	239.4	170.2	45.3	35.1	40.7	8,596.2	7,339.9	6,934.5
3.	ADAMS	28.6	28.6	29.5	47	41	49	1,256.4	1,142.6	1,064.4
	ALLEN	48.9	41.2	40.2	47	41	51	1,932.4	1,763.5	2,048.6
	DE KALB	25.4	25.9	22.3	39	38	39	981.4	984.4	673.4
	HUNTINGTON	21.3	23.1	20.2	47	41	50	1,008.4	955.1	1,005.3
	LAGRANGE	23.8	24.2	19.5	40	29	32	921.3	699.9	621.1
	NOBLE	22.1	23.4	19.6	35	34	38	794.5	783.2	741.3
	STEUBEN	13.5	14.3	10.8	38	29	35	485.3	404.3	374.2
	WELLS	19.6	22.4	20.3	51	47	54	1,008.6	1,055.5	1,091.1
	WHITLEY	21.8	22.2	21.3	42	39	43	918.0	874.2	911.6
	TOTAL	214.2	225.3	204.2	43.5	38.4	44.8	9,312.7	8,658.7	9,111.3
4.	CLAY	14.8	15.6	13.1	29	26	40	425.6	399.3	521.5
	FOUNTAIN	12.7	13.6	11.1	52	29	54	665.3	394.8	596.6
	MONTGOMERY	21.9	21.2	16.1	47	32	51	1,020.6	667.9	817.2
	OWEN	6.8	7.0	6.8	35	30	43	239.5	206.7	256.8
	PARKE	14.1	16.7	13.8	44	29	47	651.7	474.8	638.1
	PUTNAM	16.1	16.7	13.9	49	31	47	744.1	504.7	650.2
	VERMILLION	21.8	22.2	17.6	52	35	51	1,142.8	784.8	893.4
	VERMILLION	4.3	4.4	3.4	41	37	49	182.1	164.8	168.9
	VIGO	22.2	21.9	17.8	44	34	48	980.5	742.4	850.4
	WARREN	13.8	13.3	11.1	49	35	43	917.2	465.9	736.4
	TOTAL	197.9	194.2	131.1	49.3	32.5	48.8	7,138.6	5,335.2	6,241.5
5.	BARTHOLOMEW	21.5	22.1	17.9	45	37	46	971.7	829.8	819.5
	BROWN	15.5	14.4	12.9	52	31	55	811.4	583.6	708.2
	CLINTON	15.2	15.2	12.1	56	35	55	843.1	534.7	662.4
	DECATUR	15.1	17.2	14.1	38	41	47	573.9	711.2	659.6
	GRANT	13.1	13.3	12.4	53	41	54	698.7	549.9	715.6
	HAMILTON	18.6	19.3	18.2	56	39	52	928.7	748.8	838.4
	HANCOCK	10.8	11.6	9.1	58	42	55	583.3	485.7	499.1
	HENDRICKS	18.7	20.6	15.6	48	35	49	884.3	708.8	765.3
	HOWARD	18.3	12.8	19.3	53	37	54	956.1	468.9	987.4
	JOHNSON	13.8	14.7	11.8	47	34	45	614.2	492.8	983.7
	MADISON	22.9	25.8	21.5	51	38	54	1,176.1	999.9	1,148.4
	MORGAN	7.3	8.8	6.9	58	48	52	387.4	389.9	387.1
	PUTNAM	9.4	11.7	9.7	46	36	51	432.8	391.8	492.4
	RUSH	27.4	24.3	19.3	46	43	54	1,188.1	1,041.3	1,037.3
	SHELBY	25.1	26.9	22.4	42	37	48	1,057.8	1,006.3	1,182.2
	TIPTON	12.8	15.4	12.7	58	38	62	844.2	591.3	783.7
	TOTAL	264.4	272.4	224.9	48.7	38.1	52.2	12,176.5	10,481.9	11,737.5
6.	BLACKFORD	7.8	6.2	6.9	46	41	44	389.2	379.5	382.2
	DELAWARE	28.4	27.1	22.2	54	45	56	1,113.5	1,227.3	1,237.4
	FAYETTE	9.2	10.4	7.8	48	41	48	444.1	430.2	393.8
	HENRY	16.8	15.1	12.8	47	42	52	801.5	634.2	662.3
	JAY	25.4	27.7	17.5	44	41	45	1,143.9	1,145.7	783.9
	RANDOLPH	38.8	33.1	29.4	52	49	56	1,982.4	1,531.9	1,646.8
	UNION	9.4	10.6	9.3	51	45	48	482.7	448.8	433.9
	WAYNE	14.3	15.5	14.4	43	43	48	642.8	671.4	694.3
	TOTAL	131.4	147.7	121.8	48.7	43.4	49.2	6,397.6	6,463.8	6,448.6

Table 12. WINTER WHEAT: ACREAGE, YIELD AND PRODUCTION BY COUNTIES, INDIANA, 1975 AND 1976 REVISED, AND 1977 PRELIMINARY

DIST.	COUNTY	ACRES HARVESTED			YIELD PER ACRE			PRODUCTION		
		1975	1976	1977	1975	1976	1977	1975	1976	1977
		- THOUSAND ACRES -			- BUSHELS -			- THOUSAND BUSHELS -		
7.	DAVIESS	25.3	26.5	19.6	40	32	41	1,013.5	836.8	808.8
	HANDIS	9.3	10.4	8.8	35	23	37	326.8	235.5	326.1
	GIBSON	33.4	35.8	28.4	38	36	40	1,276.9	1,304.8	1,051.1
	GREENE	12.4	13.8	11.3	30	28	36	369.3	358.4	406.9
	KNOX	37.2	39.7	35.8	42	38	45	1,566.4	1,524.3	1,567.8
	MARTIN	1.9	1.9	1.7	35	31	39	66.3	58.8	68.8
	PIKE	5.8	6.2	5.8	36	33	36	208.5	201.4	179.2
	POSEY	43.7	41.7	34.8	40	33	42	1,750.5	1,356.7	1,506.9
	SPENCER	17.3	18.2	14.8	38	23	33	515.3	412.1	466.1
	SULLIVAN	28.4	29.9	22.9	41	35	44	1,164.8	1,059.7	1,025.7
	VANDERBURGH	8.8	8.8	7.5	37	37	47	251.4	249.3	350.8
	WARRICK	8.5	7.4	6.3	36	29	41	233.7	211.3	257.1
	TOTAL	229.2	238.7	195.5	38.3	32.9	41.1	8,743.6	7,853.5	8,025.5
9.	BROWN	8.2	8.2	8.2	29	33	38	5.4	8.5	7.6
	CRAWFORD	1.7	1.8	1.4	33	29	39	55.9	51.4	54.3
	FLOYD	8.9	8.9	8.9	34	25	29	30.5	22.2	26.0
	HARRISON	10.8	10.6	8.5	37	25	35	399.3	260.9	298.1
	JACKSON	13.1	14.8	11.7	38	27	38	497.8	372.1	442.5
	LAWRENCE	4.3	4.5	3.7	38	23	38	154.6	101.9	139.9
	MONROE	1.8	1.1	1.8	48	30	41	48.1	32.5	48.8
	ORANGE	5.6	5.5	4.1	37	28	36	207.1	151.6	155.1
	PERRY	3.7	4.8	3.3	26	25	27	95.8	98.4	88.7
	WASHINGTON	14.8	14.4	11.7	34	25	37	474.5	354.4	438.9
	TOTAL	99.3	97.8	48.5	35.5	25.5	36.2	1,948.6	1,491.9	1,681.9
9.	CLARK	6.2	6.6	5.6	41	27	32	254.7	175.4	178.4
	DEARBORN	1.6	2.4	1.7	33	30	39	52.8	70.9	66.8
	FRANKLIN	7.7	7.8	6.3	37	38	56	284.7	299.5	313.5
	JEFFERSON	4.3	4.2	3.6	35	30	35	150.2	124.8	125.4
	JENNINGS	6.8	7.7	6.3	31	27	37	209.5	204.7	232.8
	OHIO	8.7	8.7	8.5	26	23	27	18.8	15.9	13.4
	RIPLEY	13.8	15.1	12.8	33	34	41	453.4	505.4	514.2
	SCOTT	3.8	3.8	2.8	29	26	32	103.9	98.2	89.2
	SWITZERLAND	1.8	1.8	1.4	28	28	37	41.1	49.8	51.6
	TOTAL	46.3	49.9	48.8	33.9	30.8	38.8	1,567.9	1,537.6	1,583.7
	STATE	1,480.8	1,588.8	1,248.8	44.8	38.8	46.8	61,688.8	54,888.8	58,488.8

EXHIBIT 20

AFFIDAVIT OF LOYD R. JONES

Loyd R. Jones, being first duly sworn, states:

1. I am employed by the United States Department of Agriculture as the Executive Director of the Agricultural Stabilization and Conservation Service for Indiana.

2. As a part of the official duties of the Agricultural Stabilization and Conservation Service which is an agency funded and operating pursuant to federal law, records are kept concerning set-aside and diverted acreage of farmland for which farmers are partially compensated not to grow grain crops, which set-aside and diverted acreage can only be used for pasturing purposes. Such records are under my care, custody and control as a part of my duties as Executive Director.

3. Attached hereto are two pages which are true and correct copies of records kept and maintained by the Indiana State Agricultural Stabilization and Conservation Service, which in Column No. 9 indicate for each county within the State of Indiana, the total amount of acreage set-aside and diverted under this program and on the second page at the bottom of Column No. 9, the total of the acreage within the State of Indiana set-aside and diverted under this program for 1978 was 369,135.6 acres.

4. There were 5.9 million set-aside and diverted acres nationally in the 1978 Feed Grain and Wheat Program.

[Dated: March 7, 1979] /s/ LOYD R. JONES

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COUNTY	No.	[illegible]	No.	Corn	[illegible]	[illegible]	Wh.	[illegible]	[illegible]	No	Corn	[illegible]	[illegible]	[illegible]	[illegible]
Lawrence	879	46447.5	309	11869.5			162.8	[illegible]	[illegible]		15610.5	[illegible]	10.0	450.3	3016.7
Madison	2023	165197.2	153	9307.6	—	—	1098.6	7298.4	2081.2	1516	79380.4	—	—	1367.1	5994.3
Marion	280	47090.8	46	2071.2	—	—	271.4	1518.0	453.8	734	30478.6	—	—	2628.6	2011.3
Marshall	1974	166327.5	274	[illegible]	[illegible]	—	2312.9	14058.0	8234.6	1425	68700.5	—	—	5304.9	3059.1
Martin	430	27384.0	167	9591.3	—	—	484.4	1263.1	1977.5	[illegible]	7175.0	—	6.8	403.3	1672.0
Miami	1454	147933.6	242	16180.4	88.9	—	832.7	7451.8	4825.8	1212	66000.0	100.5	—	1141.5	4836.0
Monroe	304	14051.0	79	3094.0	—	—	136.5	768.8	705.5	1046	48796.0	—	—	546.0	815.4
Montgomery	1851	212128.2	269	27399.3	—	—	3401.0	13300.5	5679.5	1552	75,000.0	—	—	1330.0	5336.0
Morgan	1121	85920.7	177	11350.0	—	—	1170.5	4510.7	2607.5	1434	70498.3	—	—	4011.0	2936.5
Newton	1039	134536.1	257	40782.9	13.0	—	523.7	7755.1	3730.9	1152	59008.0	—	—	420.0	1720.0
Noble	1780	129663.5	460	26413.0	2.4	—	3174.5	12615.5	6111.5	1105	39993.0	100.0	10.0	6.300.0	2400.0
Ohio	209	16647.8	42	1787.0	—	—	148.0	283.0	316.0	141	3086.0	—	—	1125.0	1067.0
Orange	754	45375.6	241	7918.4	—	—	394.6	795.6	2054.0	523	24934.5	20.0	—	1460.0	3177.7
Owen	925	52852.1	365	14345.4	33.5	—	2101.9	1743.2	2401.2	864	13901.5	—	—	312.5	1745.7
Parke	1363	124482.8	454	21824.2	100.9	—	4178.3	6825.6	7442.0	711	36705.2	19.3	—	4011.1	2132.5
Perry	491	33541.3	131	10430.6	12.6	30.5	1159.8	1401.3	1040.8	2417	30.0	20.6	2.6	1.8	1.0
Pike	1077	77814.1	439	28779.2	—	—	1140.7	1531.2	1604.6	1241	30482.8	—	—	1665.6	1192.0
Porter	1535	129901.0	208	14602.6	—	—	1732.6	495.0	2310.0	1035	61.000.0	—	—	1.0	0.0
Posey	1633	124079.9	396	21305.2	—	23.8	9437.9	18705.0	8610.7	1232	59697.8	—	1.4	13.266.2	3.0
Pulaski	1428	104516.0	438	47109.9	—	—	1214.0	8324.6	9074.7	1052	78452.0	—	—	3974.5	5460.8
Putnam	1490	132236.8	338	24771.2	5.1	—	1156.2	2.4.1.3	5200.4	1620	59669.2	40.0	—	4956.0	3414.2
Randolph	2640	196688.3	397	139.8.2	—	—	3904.1	17364.6	3499.6	1743	67045.0	30.0	—	13676.0	1412.0
Ripley	1875	134231.2	265	11372.1	—	—	1183.0	6767.6	2537.4	1810	36735.4	—	—	4058.4	3726.1
Rush	1423	118842.0	208	9787.0	—	—	804.0	6860.0	2056.0	1478	100,000.0	7.0	20.0	2.200.0	1.0
St. Joseph	1641	135880.4	362	24485.8	—	26.5	1930.2	10881.2	5752.1	1259	58000.0	183.7	2.5	6200.0	3750.0
Scott	734	46545.0	237	12186.2	—	—	410.8	3333.0	3612.2	497	11475.0	—	50.0	300.0	2500.0
Shelby	1930	152881.8	459	19256.6	—	—	1246.3	6280.2	5243.6	1777	103829.7	—	—	1813.6	5012.4
Spencer	1263	109796.1	342	17367.7	33.3	115.0	1301.6	12.374.1	3839.6	1011	32545.0	180.0	32.0	4855.0	3582.0
Starke	1245	110500.0	427	40182.1	19.5	—	625.1	11062.9	5393.1	818	29340.0	—	—	6.00.0	2502.0
Steuben	1213	87968.4	265	13445.0	—	—	1209.0	6458.9	3900.4	1098	42351.0	—	—	4434.0	1384.0
Sullivan	1532	134218.4	452	22853.3	7.4	—	994.3	12324.5	7455.2	1080	41512.6	—	—	7757.5	2049.5
Switzerland	810	17768.9	82	1758.7	—	6.0	116.7	882.1	3112.0	548	6000.0	12.0	3.0	1200.0	1.0
Tippecanoe	1696	149933.0	267	20091.4	—	—	1184.4	13855.1	4040.4	1579	86764.0	—	—	5.0.0.0	0.0
Tipton	1281	111659.8	96	3805.7	—	—	118.8	2694.9	714.2	1378	77000.0	—	—	4000.0	5004.8
Union	305	27198.4	67	4536.6	—	—	648.2	2173.1	1062.1	438	29859.2	—	—	3381.1	1143.1
Vanderburgh	970	73587.5	214	5790.8	—	—	—	4859.2	1436.8	866	52000.0	—	—	2200.0	2.0
Vermillion	935	79576.6	232	10215.6	5.4	—	1541.7	4003.7	3289.8	703	32420.8	26.2	—	1625.7	2017.5
Vigo	1570	111793.5	331	20730.8	104.2	81.1	3193.2	20.1.20	7125.9	1092	36750.0	3000.0	—	2.000.0	0.0
Wabash	1860	139385.5	161	9045.4	—	—	958.1	7596.5	2087.8	1499	65000.0	—	—	4358.0	4078.9
Warren	814	46490.9	238	23966.1	—	—	824.1	3012.8	2599.2	548	23000.0	—	—	1100.0	3947.0
Warrick	925	74531.2	227	13857.7	—	—	685.1	2421.6	2963.8	741	23014.0	34.0	19.0	1123.0	1761.0
Washington	1446	91010.4	342	16240.5	—	3.1.0	1154.2	2.1.0.6	3428.6	1054	32000.0	125.0	3.00.0	1.300.0	1300.0
Wayne	1287	123647.4	404	19878.1	—		2546.1	9205.1	3403.4	1323	45000.0	—	—	1000.0	0.0
Wells	1789	125.89.1	116	8942.0	—		1242.0	11.781.1	3151.5	1.1.2	3922.2	—	—	1000.0	611.4
White	1656	149280.2	201	11791.2	—	—	1532.0	3152.0	1.27.3	1.56	15.16.0.5		—	2000.0	0.0
Whitley	1284	125219.7	597	36819.2	—	—	3539.0	2167.0	7066.7	1132	52256.0	—	—	1142.7	2.1.1.5
Total	58,026	5,311,845.9	18,395	1,209,274.2	2,[illegible].2	338.1	16,190.[illegible]	[illegible]	113,432.[illegible]	41 [illegible]	2,515,110.0	4, 0.11.1	677.7	223,011.1	0.[illegible]
State [illegible]	122,897	9,211,045.9	24,618	1,889,135.2	2,1[illegible]	744.9	152,010.	116,[illegible]	369,135.6	104,799	4,1[illegible]	1,02.6.6	2.1573	533,241.7	3,140,93[illegible].2

County	Number	Acres	Number	Corn	Soybeans	Barley	Wheat	Hay and Grain	Oats	Number	Corn	Soybeans	Barley	Wheat	Hay and Grain
Adair	1917	148,340.0	290	28,158.0	13.0	--	3111.0	15,270.0	2,572.0	1627	34,545.0	140.0	--	1218.0	29,760.0
Allen	3126	134,440.0	607	20,883.0	8.0	--	2279.7	28,734.3	5,835.5	2519	55,163.0	--	--	1178.0	24,814.4
Bartholomew	1485	139,780.0	340	21,321.7	31.3	6.4	3733.1	9918.3	2,855.1	1332	43,434.0	37.0	--	654.1	2,042.0
Benton	1311	133,394.0	340	21,161.5	--	--	3150.0	9,161.0	1,855.0	1,556	39,832.0	14.0	--	640.1	1,512.0
Blackford	831	70,852.5	128	5183.5	--	--	1780.5	15,317.1	1,462.1	717	12,806.0	--	--	412.1	2,790.20.0
Boone	1859	175,952.5	399	17,373.6	--	--	1336.7	14,675.3	4,062.3	1430	46,685.0	--	--	1011.5	1,247.0
Brown	212	8554.5	59	1578.6	--	--	--	146.2	345.8	153	2,518.9	--	--	--	220.3
Carroll	1540	134,435.1	212	15,877.1	--	--	638.9	8032.8	3,472.1	1328	42,707.7	--	--	976.0	11,295.5
Cass	1778	120,735.5	278	17,134.4	--	--	1375.5	13,570.2	4,335.7	1,500	40,000.0	--	--	1032.0	4,000.0
Clark	986	49,172.0	215	8038.0	7.0	15.5	699.2	3467.9	1,604.6	1653	16,000.0	60.0	13.0	2012.0	1,051.6
Clay	1699	117,531.1	395	16,621.2	27.0	--	3276.2	3,011.0	2,311.4	1,301	31,492.7	--	--	1147.7	2,991.6
Clinton	1762	107,353.3	167	11,072.1	--	--	973.1	5,215.3	3,453.4	1575	33,762.0	--	--	1232.0	6,190.0
Crawford	373	11,245.0	116	3662.6	--	--	57.7	138.5	1,441.1	1139	3,441.1	--	--	126.7	1,036.1
Daviess	1900	191,173.1	525	39,751.6	133.6	--	4113.4	10,819.3	2,141.1	--	46,531.1	33.0	--	1392.1	2,624.1
Dearborn	692	32,052.4	156	3,249.1	9.0	--	361.1	1,496.2	1,553.1	536	15,96.9	7.0	12.0	1251.0	1,156.0
Decatur	1206	93,332.1	124	10,367.6	--	--	571.5	2,890.7	2,061.2	1267	110,685.5	75.0	178.6	5311.4	1,176.2
DeKalb	1918	140,364.0	569	24,040.0	--	--	5185.0	119,156.0	6,331.0	1500	40,000.0	--	--	1000.0	12,490.0
Delaware	1746	147,287.3	235	10,051.3	--	--	2196.3	7042.0	2,511.1	13.3	64,000.0	20.0	--	1000.0	1,200.0
Dubois	1271	97,362.2	458	29,447.6	98.5	186.4	2405.2	5,007.1	6,291.9	812	21,672.0	109.0	305.0	1125.0	2,239.0
Elkhart	1306	101,655.0	142	8721.0	3.7	--	420.1	1,401.1	1,814.7	1,164	5,000.0	3.0	3.0	1251.0	1,250.0
Fayette	635	43,254.9	91	5,462.0	--	30.0	54.7	1,519.4	1,311.7	344	32,667.2	--	21.0	292.9	2,256.6
Floyd	183	9757.3	25	1035.6	--	--	167.4	321.0	2,994.3	151	1,630.0	35.0	2.0	990.0	1,250.0
Fountain	1479	161,324.4	387	25,610.6	--	--	1374.6	22,568.7	6,154.8	1092	37,626.1	--	--	1178.4	4,626.4
Franklin	1002	63,275.5	119	3,945.1	--	10.0	417.4	1512.3	7,017.2	833	22,500.0	40.0	30.0	1002.0	12,000.2
Fulton	1520	153,725.5	513	41,366.9	--	--	2068.9	19,478.2	7,151.8	1003	43,332.2	--	--	1241.4	2,038.6
Gibson	2020	194,460.1	401	30,107.1	--	--	3704.6	14,710.1	6,401.7	1,734	72,816.0	69.4	14.0	1556.0	52,413.2
Grant	1743	124,817.1	170	3694.3	--	--	1251.5	2,255.8	1,359.1	1990	63,680.0	--	--	1011.0	2,256.0
Greene	1341	147,291.8	314	25,160.8	--	--	1534.7	7683.2	5,611.0	1031	46,693.0	130.0	--	1245.0	2,190.0
Hamilton	1586	145,248.8	90	5942.1	--	--	549.8	4755.6	1429.3	1476	56,832.0	--	--	1765.0	52,419.0
Hancock	1223	111,630.5	237	9830.3	--	--	849.7	5109.2	2,057.5	1072	34,954.6	--	--	1387.5	4,749.3
Harrison	1413	124,992.0	320	8001.0	31.6	131.4	1431.1	3,121.1	1,120.2	--	1,000.0	--	--	1000.0	--
Hendricks	1983	129,224.1	118	9815.7	--	--	1225.5	1033.1	2,317.4	332	5585.0	--	--	1017.7	1,178.4
Henry	1828	141,926.4	158	8085.3	--	--	951.7	2,245.6	2,121.5	1468	62,286.0	--	--	1643.1	5,113.6
Howard	1421	73,452.0	118	7001.2	--	--	601.6	5876.4	1,573.4	1395	62,647.5	--	--	1131.5	1,225.1
Huntington	1782	139,109.0	247	11033.7	--	7.0	2078.8	13,461.8	2,539.0	1475	57,109.9	--	--	1872.4	5,992.2
Jackson	1540	139,540.9	472	32,818.2	138.6	13.0	2705.9	10,751.8	6,994.4	1823	46,403.3	268.0	58.0	1358.7	3,168.6
Jasper	1626	135,691.1	518	37,224.0	--	--	1239.3	33,505.5	12,619.5	1174	30,000.0	--	--	2000.0	4,000.0
Jay	1806	160,409.9	360	22,780.9	84.9	--	5095.5	21,042.1	4,111.2	1446	40,534.5	54.0	--	1311.1	2,000.0
Jefferson	1151	93,148.0	140	5946.3	--	5.0	170.6	1558.0	1,407.6	1011	13,300.0	20.0	300.0	1877.8	1,230.0
Jennings	1223	107,333.4	360	15,716.5	--	--	516.6	4,073.2	3,132.2	767	11,000.0	--	--	1000.0	1,000.0
Johnson	1243	109,477.1	65	3018.1	--	--	318.1	1218.4	1,646.7	1188	42,000.0	--	35.0	1000.0	2,160.0
Knox	1724	130,355.1	563	51,394.4	32.0	--	10042.2	21,345.5	12,293.3	1221	62,564.7	95.5	--	1731.1	1,1[illegible]
Kosciusko	2157	171,742.0	351	25,476.1	--	--	1937.3	8,656.3	5,942.1	1132	78,771.0	--	--	1811.0	2,210.0
Lagrange	968	82,672.1	142	11,449.1	--	--	1398.1	4,192.9	2,530.8	527	40,421.1	200.0	--	1122.0	1,[illegible]
Lake	4054	284,324.8	342	21,850.2	--	--	4[illegible]	13,201.3	6,534.1	812	42,584.0	--	--	1755.3	1,[illegible]
LaPorte	1805	215,205.0	436	18,341.6	--	13.0	2632.1	10,237.1	4,424.4	1369	24,000.0	50.0	30.0	1586.0	2,[illegible]
	64,871	5,[illegible]	13,223	1,035,[illegible]	621.6	404.8	81,526.0	785,102.0	310,[illegible]	56,692	2,353,411.1	2815.5	1,760.1	[illegible]	9,715,751.1

EXHIBIT 40

REVIEW OF RECLAMATION PLANS

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE
5610 Crawfordsville Road, Suite 2200, Indianapolis, Indiana 46224

September 20, 1978

ADVISORY—CONS—IN—13

From: Buell M. Ferguson, State Conservationist

Re: Plan Review for Restoration of Prime Farmland

The Secretary of Agriculture, under the Surface Mining Control and Reclamation Act of 1977, has assigned responsibility for providing assistance to state surface mine regulatory agencies to the Soil Conservation Service.

The Soil Conservation Service will receive requests from the Jasonville office of Indiana Department of Natural Resources, Reclamation Division, to review reclamation plans for reconstruction of prime farmlands. These requests will be received by field offices in the counties where mines are located. Field offices will be responsible for making the review and returning the plans to the Jasonville office of IDNR within 15 days after receiving them.

The attached procedure is to be used when reviewing plans for reconstruction of prime farmland. The review and comments will be limited to the prime farmland aspects of the plan. It is anticipated that most of these reviews can be made in the office without field review.

Retain this advisory and the attached procedure until further notice.

/s/ Buell M. Ferguson
State Conservationist

Attachment

PROCEDURE FOR REVIEWING PLANS FOR THE RESTORATION OF PRIME FARMLAND (PL-95-87)

To adequately review a plan it must contain the necessary items to evaluate the reconstruction of prime farmland. The review will be made on plan content only, *without any assumptions* as to the operator's intent. The review and comments will be limited to the prime farmland aspects of the plan. If it cannot be determined by reviewing the plan that these items are adequate, it should be so stated in the comments.

The following is a list of items that need to be checked on each plan:

1. When stockpiling of soil horizons is necessary to accomplish soil reconstruction separate stockpiles will be needed for A horizon soil material and for the mixed B and C horizon soil material, or for other suitable plant growth material. A separate stockpile area will be needed for the C horizon soil material if this material would adversely affect the productivity of the soil or if separate handling of the C horizon would enhance productivity.
2. Where it is found that a particular horizon or combination of horizons or field identifiable units have the best potential of enhancing post-mining productivity, that unit or horizon shall be saved and replaced.
3. The average major horizon thickness for soil reconstruction should be shown on the plan and needs to agree with the major horizon thicknesses for the original map unit.
4. The plan should specify that soil reconstruction of prime farmland will be made with the original sequence and thickness of natural A, B & C horizons to the depth of the root zone of the original soil, but it is not necessary to exceed 60 inches.
5. The mechanical equipment designated to be used for restoration is capable of removing and replacing the designated horizons to carry out the plan.

6. The plan needs to show that restoration will be to the approximate original contour. If restoration will not be to the original contour, exceptions must be identified and determined to be adequate.
7. A determination must be made that the restoration will be completed in such a way to permit the original (pre-mining) land use, or better.
8. The grading plan needs to allow for some settling of the soil so that positive surface drainage is provided on all areas that are restored.

EXHIBIT 41

AFFIDAVIT OF WILLIAM RICHARD BYRNES

Comes now the affiant, and upon his oath deposes and says as follows:

1. That he has been employed by Purdue University since 1962, and since 1975 has held the rank of Professor and Assistant Department Head of the Forestry and Natural Resources Department.

2. That he received his Ph.D. in Agronomy from Penn State University in 1961.

3. That he is familiar with the Indiana laws relating to the reclamation of surface mined areas and the use of lands reclaimed following surface mining operations in Indiana.

4. That the first Indiana surface mining statute was enacted in 1941, and that the principal land utilization of surface mined areas was in trees and tree species.

5. That since the enactment of the 1967 Indiana Surface Mining Law there has been a shift in emphasis by the State of Indiana from forest land to range land, pasture and hay and some row crop.

6. That the land use determinations made for the reclaimed areas in the State of Indiana by the State of Indiana have been valid determinations for the lands involved.

7. That the area in which surface mining operations are conducted in Indiana is suited for forest/range land utilization as well some lands which are suited for agricultural purposes.

Further affiant sayeth not.

[Dated: April 18, 1979] /s/ WILLIAM R. BYRNES

EXHIBIT 45

MINUTES OF THE STREAM POLLUTION CONTROL BOARD MEETING
HELD IN ROOM A-419,
STATE BOARD OF HEALTH BUILDING
INDIANAPOLIS, INDIANA
June 19, 1979—SIXTH MEETING

* * *

ABANDONED MINES DOCUMENT
WCIEDD—REGION 7

5. Mr. Michael Harding explained that at the May 15, 1979, meeting the Stream Pollution Control Board deferred action on the "Analysis of Abandoned Coal Mines in West Central Indiana," document prepared under Section 208 Water Quality Management Planning for Region 7. The Board directed the staff to meet with representatives of the Coal Industry and the Region 7 staff to discuss proposed changes to the certification recommendation. A meeting was held on May 31, 1979. As a result of the meeting, the following wording should be added to the certification recommendation such that the Abandoned Mines document will be certified with the understanding that:

   1) The only mine drainage problems documented were caused by coal mines abandoned prior to 1967 Indiana Surface Mine Act (IC 13-4-6 et seq.).

   2) The report suggests feasible techniques that may be used as a base for devising individual site plans.

   3) The priority guidelines are set up on a "four priority system" and that sites within the four priorities are not listed in order by magnitude of water quality impact.

4) Further refining of the Best Management Reclamation Practices be done in consultation with property owners.

* * *

After considerable discussion, Mr. Andrews made a motion to accept the staff recommendations and certification of the WCIEDD Abandoned Mines Document. The motion was seconded by Dr. Huegli and passed unanimously.

* * *

/s/ ROBERT A. HOLT
Chairman

/s/ ORAL H. HERT
Technical Secretary

Defendants' [Appellants'] Exhibits[3]

REPORT OF 208 WATER QUALITY PROGRAM, AN ANALYSIS OF ABANDONED COAL MINES IN WEST CENTRAL INDIANA AND SUGGESTED RECLAMATION TECHNIQUES (WITH AN INVENTORY OF ACTIVE STRIP MINES)

June, 1978

* * *

9. *Except for some sedimentation problems, active strip mining in West Central Indiana is causing only minimal surface water quality problems.* [Page 216.]

---

[3] See note 2 *supra*.

EXHIBIT A

AFFIDAVIT OF DONALD F. SMITH

Donald F. Smith, being duly sworn, deposes and says as follows:

(1) I have a Bachelor of Science Degree in Agricultural Engineering from Texas A & M University and a Master of Engineering in Agricultural Engineering from Cornell University. I am an Agricultural Engineer for the Division of Technical Services and Research for the Office of Surface Mining, United States Department of the Interior, Indianapolis, Indiana. As an Agricultural Engineer I am knowledgeable in the areas of water, soil, and agronomic systems and their relationships in providing a productive environment for plant and animal life. This includes knowledge in the science of the reclamation of disturbed lands.

(2) The mining of "steep slopes", as defined in the Surface Mining Control and Reclamation Act of 1977 and regulations thereunder, is rarely encountered in Indiana. Steep slope mining refers to contour mining as found in the Appalachian Coal Basin. The Eastern Interior Coal Basin, which underlies a portion of Indiana, has flat or gently rolling terrain with occasional steep slopes. Only 2 percent of Indiana's coal reserves are located in steep slope areas. Neither AMAX Coal Company nor Peabody Coal Company are currently mining on steep slopes in Indiana.

(3) A current study by Argonne National Laboratory, an independent research laboratory, entitled, "Projected Acreage of Prime Farmland to be Disturbed by Coal Mining in the Cornbelt, 1980-2000", projects that in the 15 surface coal producing counties in Southwestern Indiana, approximately 40,000 acres of prime farmland will be disturbed by surface mining over the next 20 years.

(4) Further, the State imposes no requirements other than grading, to assure that strip mine operators prac-

tice proper soil handling and soil segregation techniques along with proper soil treatment and revegetation practices all of which are necessary if land is to be returned to its pre-mining productive capability.

(5) An information system, also developed by Argonne National Laboratory, "Surface Mining and Land Reclamation Information System", (SUMLARIS), which extracted data directly from surface coal mining permit applications and reclamation plans in the State of Indiana for the year 1976, showed that although reclaimed mine lands were being graded to slopes which would accommodate row crop agriculture, the permittee had no intention of returning the lands to that use. Of the 69 mining sites which had a pre-mining land use of row crop, only four were proposed to be returned to row crop agriculture. The others were to be returned to various other uses.

(6) a number of scientific studies conducted by experts in the field, including those listed below, demonstrate that the technological capability exists for an operator to return prime farmland to its pre-mining productive capability. Based on studies of this type, it is clear that operators can make a showing that prime farmland can be returned to its pre-mining productive capability.

(a) In "Use of Soil Materials on Spoils—Effects of Thickness and Quality" by J.F. Power, et al., North Dakota Agricultural Experiment Station, Reprint No. 891, from September—October, 1976, Farm Research, Vol. 34, No. 1, researchers concluded that requirements for saving and respreading soil material after mining will meet the needs of most crops grown.

(b) In "reclamation of Coal-mined Land in the Northern Great Plains" by J.F. Power, et al., Journal of Soil and Water Conservation, March—April 1978, the authors concluded that soil resources can be saved and respread without diminishing their ability to produce equal yields.

(7) These studies include extensive research in Illinois' cornbelt soils, which are similar to Indiana's cornbelt soils, by a number of researchers. Among those researchers is Alten F. Grandt, Director of Reclamation, Peabody Coal Company, who in reviewing research and after conducting studies has concluded that:

(a) corn and soybeans can unquestionably be grown on land that has been stripmined for coal;

(b) mined lands can be returned to a high level of agricultural productivity; and

(c) lands can be returned to equal or higher levels of productivity after mining.

Among Mr. Grandt's studies are:

"Reclaimed Mined Land in Illinois for Row Crow (sic) Production" by Alten F. Grandt, Director of Reclamation, Peabody Coal Company, published in the Journal of Soil and Water Conservation, September—October, 1978;

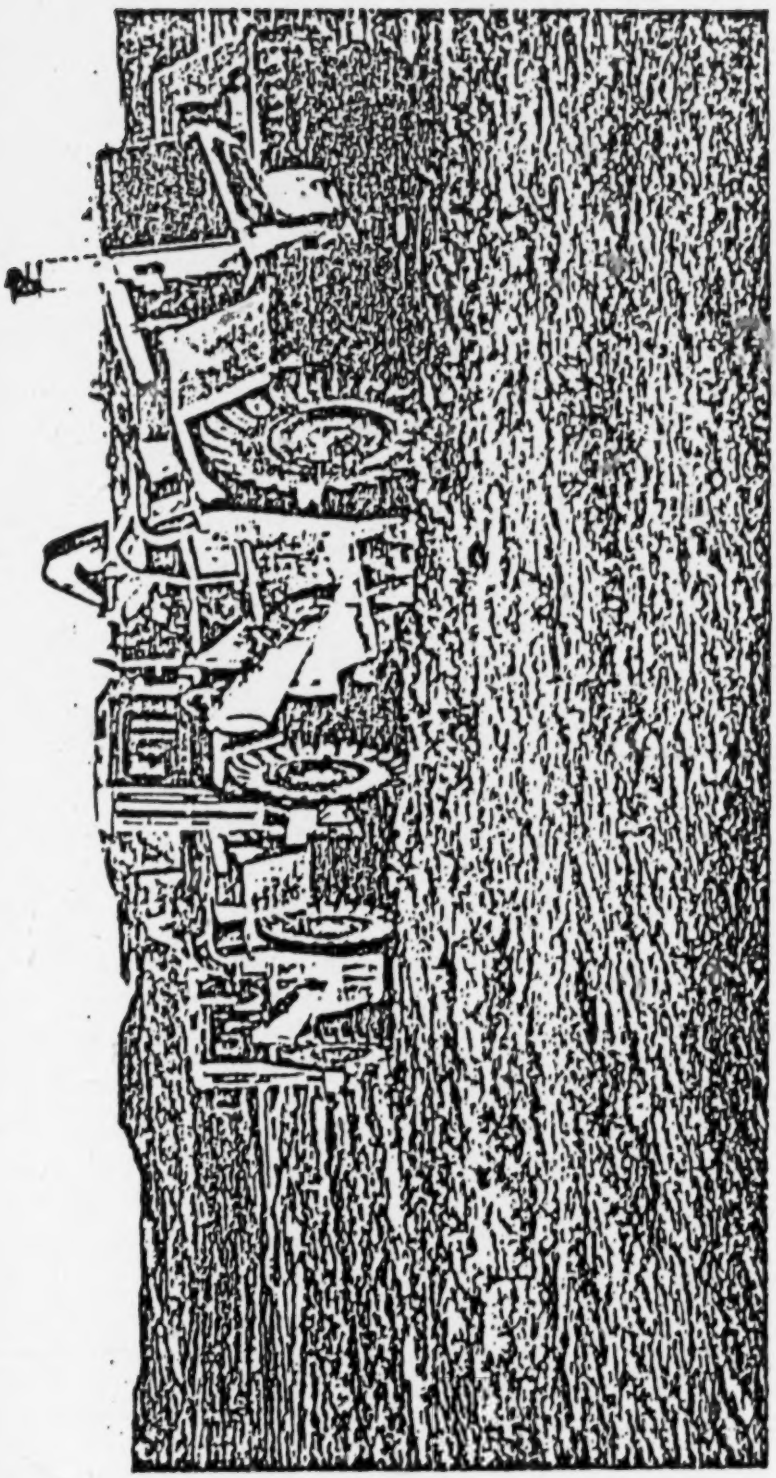
"Mined-land Reclamation in the Interior Coal Province" by Alten F. Grandt, Director of Reclamation, Peabody Coal Company, published in the Journal of Soil and Water Conservation, March—April, 1978; and

"Reclaiming Illinois Strip Coal Land With Legumes and Grasses", by A.F. Grandt, and A.L. Lang, University of Illinois, Agriculture Experiment Station, Bulletin 623, April 1958.

(10) Also, throughout the legislative history of the surface mining initiative, industry asserted time and again that it is technologically possible to return prime farmland to its pre-mining capability. John A. Conlin, a plaintiff herein, representing AMAX Coal Company, wrote the attached letter to the Honorable Dennis T. Avery, an Indiana legislator, in which he stated that "the coal industry is quite capable of returning all surface mined land to pre-mining productivity levels. In some instances, actual improvements have been noted."

(11) The prime farmland provisions of the Act and regulations can be accomplished by using readily available construction equipment such as pan scrappers, bulldozers, dump trucks, and graders. The compaction requirement of the interim regulations, section 716.7(g)(5)(i), 43 Fed. Reg. 62695, can be achieved by laying down the A and B horizons, separately, in thick layers and avoiding excessive vehicular traffic over that area. It is a common farming practice to deep till the soil to alleviate adverse compaction problems. This practice may be used by the operators. In addition, dump trucks can end dump the A and B horizons, separately, and small bulldozers can push the topsoil into its final configuration.

[Dated: April 17, 1979] /s/ DONALD F. SMITH



Removing topsoil before stripping.

AMAX COAL COMPANY
A DIVISION OF AMAX INC.
105 SOUTH MERIDIAN STREET, INDIANAPOLIS, INDIANA, 46225 [317] 266-2626
JOHN A. CONLON
DIRECTOR—GOVERNMENT RELATIONS

March 18, 1977

The Honorable Dennis T. Avery
State House
Indianapolis, Indiana 46204

Dear Dennis:

We have just learned that the Carter Administration intends to support an amendment next week to H.R. 2, Congressman Udall's anti-strip mine bill, which would place a moratorium on strip mining in so-called prime agricultural areas in the Midwest. If enacted, such a proposal would have the gravest catastrophic effect on Southwestern Indiana. The attached chart indicates which of our mines in Indiana would be affected and the financial loss which would be suffered by mineworkers and local businessmen as well as loss of taxes to the counties and the state.

Beyond the economics, such a moratorium is unnecessary from a technical and scientific know-how standpoint. On both counts, the coal industry is quite capable of returning all surface mine land to pre-mine productivity levels. In some instances, actual improvements have been noted. Indiana Department of Natural Resources records indicate that for the permit period from 1976-1977, AMAX Coal will mine 1652 acres out of which only 707 acres were either being used for row crop agriculture or had such capabilities prior to mining. Under our reclamation plan we have filed with the state and for which we have given bond, we will be returning 1052 acres to row crop standards—an almost 50% increase in row crop acreage!

A moratorium for five years, as is being currently proposed, would have the gravest economic consequences for the thousands of Indiana coal miners and their

families. Moreover, the ripple effect of such a ban would be felt throughout the entire state. We urge you to immediately communicate your opposition to such a proposal to Congressman Phil Sharp, who is a member of Udall's House Interior and Insular Affairs Committee. Copies of your communication should go to President Carter, Secretary of the Interior Cecil Andrus, Congressman Morris Udall, and the entire Indiana Congressional delegation. Addresses for these individuals are enclosed for your reference.

If you have any questions at all on this matter, please feel free to get in touch with me or Geoff Emerson immediately. Thank you very much for your help.

Sincerely,

John A. Conlon

JAC:tmr
Enclosures

REFERENCE 1

PROJECTED ACREAGE OF PRIME FARMLAND TO BE DISTURBED BY COAL SURFACE MINING IN THE CORN BELT, 1980-2000

David P. Bernard
Division of Environmental
Impact Studies
Argonne National Laboratory
Argonne, Illinois

Introduction

In April 1977, President Carter submitted to Congress a National Energy Plan (NEP) which called for increasing annual coal production to more than one billion tons by 1985. Among the many environmental concerns associated with accelerated coal extraction is the potential for an increasingly large amount of agricultural land—specifically, prime farmland—to be disrupted by the mining process. Despite the vastness of our country, prime farmland comprises but 15% of the total land surface, and yet 17% of the strippable coal is beneath this land.

Concern for the susceptibility of farmland to surface mining is by no means confined to recent times. In 1939, Hanna and Vandervliet pointed out that in certain Illinois counties, strip mine companies owned or controlled land which on the average had a better productivity index (on a scale of 1 to 10) than the remainder of the land in the given county. This led them to suggest that lands in strippable areas should be rated according to their agricultural value and that mining should be prohibited in the better farming areas. A 1976 report by Ostendorf and Gibson contained the same message, again for Illinois. In 1977, Interior Secretary Andrus proposed to Congress that a national moratorium on mining prime farmland be imposed for a period of five years to allow a study to be conducted into the impacts of surface mining on prime farmland.

In passing the Surface Mining Control and Reclamation Act (SMCRA) of 1977, Congress rejected the suggestion for a moratorium on mining prime farmlands, indicating that as long as a given parcel of land could, and would, be restored within a reasonable amount of time to its original level of productivity, mining could commence at that site. Consequently, although numerous authors (e.g., see References 6-9) have indicated concern over the agricultural impact which can accompany coal extraction, it is now important to begin a dialogue in which the reality of surface mining on prime farmland is considered in quantitative terms. As a first step toward this goal, this report presents a numerical analysis of the acreage of prime farmland which could be affected by surface coal extraction in the Corn Belt during a 20-year period, 1980-2000.

Method

The Corn Belt farm production region was chosen for this study because all five states—Ohio, Indiana, Illinois, Iowa, and Missouri—contain mineable coal and are important producers of agricultural products. To achieve as high a degree of accuracy as possible, modeling was carried out at the county level; however, the results are of greatest value when considered at the regional level.

Direct prime farmland disturbance (the acreage immediately over the coal being removed) at a county level was calculated using the equation:

$$P = \left[\left(\frac{e \cdot s}{d \cdot t}\right) \frac{1}{r}\right] \frac{p}{c}$$

where P = prime farmland disturbed annually, in acres
e = projected total yearly coal extraction, in tons
s = fraction of total coal extraction to be surface mined
d = coal density, in tons/acre-foot
t = seam thickness, in feet

r = recovery rate, fraction of total coal mined

p = county prime farmland area, in acres

c = total county |~~prime farmland~~| area, in acres

The assumptions were: (1) the bulk density of coal throughout the Corn Belt region is 1800 tons/acre-foot, (2) coal surface mining in this region is 98% efficient in removing coal from the seam, (3) there is but one major seam per mining operation which may contain partings, (4) the coal and prime farmland are homogeneously distributed throughout the county, (5) prime farmland will not be differentiated and avoided by surface mining operations, and (6) the SEAS model data for future coal mining reflect the NEP and are an acceptable indication of potential future mining activity when considered at the regional level. According to Treworgy et al., the bulk density of Illinois coal is around 1790 tons/acre-foot, but for most calculations involving bituminous coals, a value of 1800 tons/acre-foot is considered acceptable. On the average, current surface mining operations remove 80 to 90% of the coal, but future methods are expected to be more efficient, hence 98% efficiency. Although there are multiple seams in the vertical profile of most mining areas in the Corn Belt, usually only one is mined at a time, because the others may either be uneconomically thin or too deep. The best available information on prime farmland distribution is given at the county level; therefore, calculations combining data for coal and prime farmland resources inherently have the assumption that each of these two resources is homogeneously distributed throughout the counties being considered. The flat land surface and the lack of woody vegetation and buildings make prime farmland sites attractive to mine operators; thus, without economic or regulatory disincentives, these lands are often considered choice sites for mining operations. Furthermore, as noted earlier, the SMCRA has made it possible for operators to legally mine these lands, provided certain regulations and performance standards are met. Finally, the SEAS data are considered to be

reasonable forecasts of future coal production, as shown by a comparison between them and two other sets of estimates (see Reference 12).

In addition to direct disturbance of land, surface mining also results in indirect land disturbances at the mine site such as: haulage and service roads, overburden and topsoil storage areas, sediment retention ponds, and coal storage piles. Together, the direct and indirect land disturbances give an estimate of the total acreage affected. Based upon data of the Council on Environmental Quality and the EPA, it is assumed that the total acreage affected in the Corn Belt is a factor of 1.2 higher than the acreage directly disturbed there. Thus, to arrive at an estimate of the total land disturbed, an additional acre is assumed to be affected by the above-named land uses for every five acres directly disturbed.

Results

During the 20-year period 1980-2000, the level of [surface] coal production in the Corn Belt states is expected to increase, reaching 130 million tons per year by the turn of the century (Table 1). If this level of coal production is reached at the rate predicted in the model, by the year 2000 some 433,000 acres of land and 122,000 acres of prime farmland are forecast to have been affected by the previous 20 years of surface mining for coal (Table 2). This is equivalent to 0.2% of the total prime farmland acreage in this farm production region.

It is important to note that the relationship between non-prime farmland disturbance and prime farmland disturbance is not linear. As seen in Table 2, Ohio is projected as having the largest acreage of land disturbed, but the amount of prime farmland forecast for disturbance is lower than for several other states. This is because the coal producing areas of eastern Ohio do not contain as much prime farmland as do the coal producing areas of other states, such as Illinois.

To lend perspective to the analysis of the prime farmland acreage disturbed by surface coal mining in

the Corn Belt, preliminary estimates have been made of the future acreage which could be affected if the present rate of prime farmland conversion to urban, roadway, and water uses (Table 2) continues at a constant rate. Data used to extrapolate the acreage devoted to urban, built-up, and water areas were taken from Lee and represent historical events of the period 1967-1975; definitions of the land use terms follow criteria published by the U.S. Soil Conservation Service. Presently, over 1.3 million acres of prime farmland are devoted to "irreversible" land uses; if current trends continue, another 3.4 million acres could be affected during the next 20 years (Table 2).

Discussion

Estimates of the prime farmland acreage that could be disturbed by future surface coal mining should be viewed as trend indicators rather than absolute predictions, for considerable uncertainty still surrounds the coal industry and the legislation affecting it. For example, the Clean Air Act Amendments of 1977, the Surface Mining Control and Reclamation Act of 1977, and the Federal Coal Leasing Program Amendments of 1977 are likely to affect coal mining throughout the remainder of this century; however, the full impact of these legislative actions has yet to be registered by the industry. Furthermore, productivity in the coal industry is in part related to other factors such as the supply of foreign oil, strength of the national economy, and dependability of the labor force servicing the coal mines and shipping routes. To ignore the possibility that future changes in these areas could occur is unrealistic, but to predict these changes is impossible. Consequently, the forecasts in this paper, although made as realistically as possible, must be regarded with caution.

Reconsideration of several assumptions in the equation suggests that the acreage forecasts may be too low. For example, the bulk density figure of 1800 tons per acre-foot and the 98% extraction efficiency are probably too

high, yielding estimates of the direct acreage affected which are too low. In addition, the factor of 1.2 used to estimate total acreage disturbed is conservative, since the National Academy of Sciences estimates a factor of 2.0 and the environmental statement for the Star Lake-Bisti coal mining project in northwestern New Mexico uses a factor of 1.56. However, both of these studies refer to western mining operations, and thus the factors used may not be appropriate for operations in the Midwest.

In most counties, neither coal nor prime farmland is homogeneously distributed. For this reason the county-level data may be inaccurate, because although a county may contain a substantial acreage of prime farmland, mining operations in that county may be entirely on

Table 1. Land Area and Projected Surface Coal Mining Activity in the Corn Belt

State/Area	Land Area (10^6 acres)		Projected Surface Mining (10^6 tons/year)		
	Total	Prime Farmland	1980	1990	2000
Illinois	35.7	20.6	24.8	30.6	38.2
Indiana	23.1	14.0	23.4	29.9	37.3
Iowa	35.8	18.6	<1.0	<1.0	<1.0
Missouri	44.2	12.2	5.8	9.4	14.8
Ohio	26.2	11.0	28.8	33.5	41.4
Corn Belt	165.0	76.8	83.0	103.9	132.4

Table 2. Projected 20-Year Total Land Disturbance by Surface Coal Mining and Urbanization in the Corn Belt, 1980-2000

State/Area	Land Disturbed (10^3 acres)		
	Total	Prime Farmland	
		Mining	Urban and Water Use*
Illinois	84.6	38.6	864.4
Indiana	91.0	10.6	547.2
Iowa	1.6	0.8	549.6
Missouri	73.3	21.4	627.8
Ohio	183.1	21.0	804.1
Corn Belt	433.6	122.4	3393.2

*Based on data of Lee (Reference 14).

non-prime farmland. For example, in eastern Ohio, much of the mining is done along ridge contours where the operation is unlikely to encounter prime farmland; yet because there is prime farmland in the valley below, our calculations for that county would indicate surface disturbance of some prime farmland by the mining operation. It is likely, though, that throughout the remainder of the Corn Belt in counties where much of the land is prime farmland, the non-prime farmland may also be of good quality—viz., a significant portion of the non-prime farmland disturbed may be valuable cropland.

Consideration of data in Table 2 results in the conclusion that if current trends continue, more prime farmland will be disturbed by urbanization and water use than will be affected by surface mining for coal. Because there was a period of rapid expansion in the Corn Belt land acreage devoted to water uses such as stock ponds, flood control projects, and impoundments during the late 1960s and early 1970s, it is probable that the rate of land conversion to water use will not continue linearly as has been assumed for this paper. Nevertheless, land conversion to water use accounted for less than 25% of the total land conversions during the 1967-1975 period; thus if urban growth continues, the trend that these estimates described will still be adequately represented. Furthermore, since the prime farmland acreage projected to be affected by urban and water use is on an order of magnitude higher than that forecast as being affected by mining, the conclusion that more prime farmland is affected by urbanization and other such uses than by surface mining for coal appears correct.

The purpose of giving special recognition to prime farmlands in P.L. 95-87 was to afford added protection to the nation's best farmland, and to ensure that these lands would not be lost from the cropland base. Although it is unlikely that all of the land affected by mining—e.g., sediment ponds and final-cut reservoirs—will be reclaimed, a substantial portion of the prime

farmlands affected will at least initially be returned to cropland use. The ultimate fate of these lands, after the performance bond is released by the regulatory authority upon completion of successful reclamation, is still unknown. Past reclamation practice has led to a substantial shift of former cropland to pasture, grazing, or forested land use (see Reference 17). Theoretically, however, the new permanent regulations promulgated by the Office of Surface Mining will promote the reuse of prime farmland for crop production by clearly demonstrating that the 48 inches of "reconstructed topsoil" will support crop growth at economic levels for a minimum of three consecutive years. Thus, assuming successful reclamation to crop use in a long term (> 20 years) context, surface mining for coal may be viewed as a temporary land use—a feature that distinguishes it from urban and water use which are considered irreversible.

To complete the analysis of land affected by surface mining, it would be necessary to consider the remainder of the surface mining industry such as sand and gravel, limestone, and metallic and nonmetallic mineral mining operations. The acreage of prime farmland affected by underground mining (both directly through surface disruption and indirectly through subsidence) should also be investigated. Finally, studies into the feedback loop between coal mining and the expansion of railroad lines, electrical switching stations, towns, and highways should begin to add further to our ability to quantify indirect land disturbances associated with surface coal mining.

Summary

In the 20-year period 1980-2000, 433,000 acres of land in the Corn Belt are forecast to be affected by surface mining for coal. Of this land area, 122,000 acres are expected to be prime farmland, which is equivalent to 0.2% of the total regional prime farmland area. During this same period, over 3 million acres of prime farmland could be affected by urban expansion, road building,

and water projects if current trends continue. Overall, the acreage of prime farmland affected by mining is significant, especially at the local level. Considering the small amount of prime farmland which has successfully been returned to crop production, the resulting challenge to reclamation specialists is large. [References omitted.]

EXHIBIT B

AFFIDAVIT OF DONALD E. McCORMACK

Donald E. McCormack, being duly sworn, deposes and states:

1. I am the Director, Soil Survey Interpretations Division, Soil Conservation Service, United States Department of Agriculture. My division is responsible for leadership in the use of soil surveys and how the nature of soil affects the use and management of land.

2. I received a doctorate degree in soil science from the Ohio State University in 1973 and I have published approximately twenty-five articles on soil performance and soil behavior. Among my publications are the two articles attached hereto entitled, *Soil Reconstruction: Selecting Materials for Placement in Mine Reclamation* and *Soil Reconstruction: for the best soil after mining.*

3. The soil has an A horizon underlaid by a B and/or C horizon. The A horizon is the organically enriched surface layer that has received and accumulated the residues of the native plants or the fertilizers and manures applied by the farmer. In most soils the A horizon varies from 6 to 12 inches thick. The B horizon in most soils is less favorable for plant growth than the A horizon, and usually contains more clay, gravel, calcium or sodium than the A horizons. On most soils, neither burying the A horizon under spoil during surface mining operations nor mixing the A and B horizons is compatible with full restoration of productive potentials. Generally, the A horizon of the natural soil should be segregated from the B horizon and graded back over the surface after mining. Accordingly, Section 515(b)(7) of the Surface Mining Control and Reclamation Act requires, for prime farmland areas, that the operator:

> (A) segregate the A horizon of the natural soil, except where it can be shown that other available soil materials will create a final soil having a

greater productive capacity; and if not utilized immediately, stockpile this material separately from other spoil, and provide needed protection from wind and water erosion or contamination by other acid or toxic material;

4. The requirement that mined prime farmland be restored to its pre-mined capability is both practical and feasible from the perspective of a soil scientist. This is so because productivity is a function of soil characteristics, and if the A and B horizons are properly segregated and replaced on the disturbed area, the soil should have essentially the same characteristics as it previously possessed and, therefore, should have the same productive capability. Basically, it is technologically possible to restore prime farmlands to their pre-mining productivity because restoration of these lands entails replacement of the A and B horizons or materials of equal or better quality. Through proper handling, soil properties required for restoring productivity to prior levels can be recreated.

5. One of the most efficient means to comply with the Act is simply to take from the area of prime farmland to be disturbed the A and B horizons and place them on the regraded mined prime farmland. This management practice will minimize the handling of the A and B horizons because the need to stockpile the segregated soils in storage areas is eliminated.

[Dated: March 20, 1979] DONALD E. MCCORMACK

EXHIBIT C

AFFIDAVIT OF RAYMOND I. DIDERIKSEN

Raymond I. Dideriksen, being duly sworn, deposes and states:

1. I am Director, Inventory and Monitoring Division, Soil Conservation Service, United States Department of Agriculture.

2. The information set forth below is taken from official publications and statistics of the Department of Agriculture. I rely on this data. The data is also used by persons involved with agricultural products.

3. There are 2.36 billion acres of land in the United States and the Caribbean. Of this amount, 346 million acres (14.7 percent) are classified as prime farmland. However, only 231 (56 percent) of the 346 million acres are used as cropland. In Indiana, 13.3 million acres were used as cropland in 1977, and 11.5 million acres (86 percent) of the cropland is considered prime farmland.

4. In Indiana during 1977, the latest year for which statistics are available, the harvested acreage totalled 12.6 million acres for eight major field crops which include corn, wheat and soybeans, the principal row crops grown on prime farmland.

5. The following table sets forth the production and disposition of corn for grain produced in Indiana during the period 1975-1977.

Crop year	Production for grain	Used on farms where grown	Sold	Season Average Price	Value of	
					Production for grain	Sales
	Thousand Bushels			Dollars	Thousand Dollars	
		Corn for Grain				
1975.....	551,740	165,522	386,218	2.48	1,368,315	957,821
1976.....	693,000	221,760	471,240	2.10	1,455,300	989,604
1977.....	633,420	183,692	449,728	2.00	1,266,840	899,456

The 1977 crop production in Indiana for corn was the third highest in the United States. Source: *Indiana: Annual Crop and Livestock Summary* (1977), 52.

The following table sets the wheat and soybean production for Indiana during 1975-1977:

Crop year	Production for grain	Used on farms where grown	Sold	Season Average Price per Bu.	Value of	
					Production for grain	Sales
	Thousand Bushels			Dollars	Thousand Dollars	
			Wheat			
1975	61,600	3,696	57,904	3.22	198,352	186,45
1976	54,000	3,348	50,652	2.93	158,220	148,41
1977	55,800	3,404	52,396	2.20	122,760	115,27
			Soybeans			
1975	121,605	1,702	119,903	4.98	605,593	597,11
1976	111,520	1,784	109,736	6.70	747,184	735,23
1977	139,320	1,672	137,648	5.50	766,260	757,06

The 1977 crop production for soybeans was fourth highest in the United States. Marketing of all crops in 1977 totalled $2.0 billion or 61 percent of the total cash receipts to Indiana farmers during 1977. Cash receipts from corn and soybeans accounted for 53 percent of cash receipts from all crops. Source: *Indiana: Annual Crop and Livestock Summary* (1977), 53.

7. During the 1976-1978 calendar years, Indiana farmers planted for principal crops an average of 12.5 million acres and harvested an average of 12.4 million acres. (Crop acreage includes corn, sorghum, oats, barley, wheat, rye, soybeans and other agricultural commodities). With respect to total acres planted and harvested, Indiana ranked 10th in the Nation. However, Indiana ranked seventh in the Nation for total prime farmland devoted to the production of crops.

8. Yields for prime farmland are typically higher than for nonprime farmlands. However, if we conservatively assume that prime farmland yields are the same as nonprime farmland than the following is an estimate of major commodity production for prime farmlands used for cropland in Indiana in 1978: corn for grain: 637,200,000 bushels of which 547,992,000 were produced on prime farmland; wheat for grain: 31,785,000 bushels of which 27,335,000 were produced on prime farmland; and soybeans: 140,420,000 bushels of which 120,761,000 were produced on prime farmland.

Agricultural Exports

9. Agricultural commodities are of increasing importance with respect to the Nation's balance of trade. During fiscal year 1978, a record $27.3 billion in United States farm products were exported. This was equal to 28 percent of the 1977 cash receipts from farm marketings. Over half of the rice, wheat, and soybean crops were exported. Thirty percent of the corn production was shipped abroad during fiscal year 1978. Generally speaking, about 31 percent of the 1977 U.S. crop production was exported. Agricultural exports are expected to total in excess of $30 billion in fiscal year 1979.

During 1977, harvested area totalled 342 million acres and the output from an estimated 107 million of those acres were exported, including 40 million acres in food grains, 26 million in feed grains, and 37 million for other commodities. Cash receipts at the farm level from exports amounted to over $96 billion during 1976.

In 1978, agricultural exports resulted in a net gain in the United States balance of payments of $14.2 billion (agricultural exports minus agricultural imports), thereby reducing the United States trade deficit from $46.8 billion to $32.6 billion.

The value of these exports to Indiana farmers for the period October 1975 through September 1977 are as follows:

	Wheat and Flour	Total Feed Grains	Soybeans
		Million dollars	
1975	$145.9	$366.4	$239.3
1976	143.2	545.5	239.0
1977	80.6	563.0	368.5

Source: *Foreign Agricultural Trade of the United States* (Feb. 1978) (reprint attached hereto).

10. Major commodities exported in 1978 included corn (30 percent), soybeans (56 percent), and wheat (61 percent) of domestic production. Assuming that a similar percentage of these grain commodities are part of the production from Indiana, the following data demonstrates the number of bushels produced in Indiana on prime farmland and exported: corn for grain: 169,398,000 bushels; wheat: 16,674,000 bushels; and soybeans: 67,626,000 bushels.

11. The acres of crops harvested and used for specific purposes during the period 1910-1977, as the attached table demonstrates, has remained relatively stable as has the cropland used for crops. Source: *Changes in Farm Production and Efficiency* (1977), 18-19.

During 1978, one farmer supported 59 persons for agricultural products, 43.5 of which resided in the United States and 15.5 of whom lived abroad.

12. In addition to the importance of Indiana's agricultural production to the Nation and the Indiana farmer, numerous industries in Indiana depend upon the farmer for a livelihood. For example, Indiana farmers spent $371.3 million for feed, $100.3 million for seed, $313.4 million for fertilizer and lime, $387.7 million for maintenance of capital items and $131.8 million for hired labor during 1975. Source: *State Farm Income Statistics* (Sept. 1978), 42.

[Dated: April 16, 1979] /s/ RAYMOND I. DIDERIKSEN

EXHIBIT F

AFFIDAVIT OF EDGAR A. IMHOFF

Edgar A. Imhoff, being duly sworn, deposes and says as follows:

(1) I am the Regional Director, Region III, Office of Surface Mining, Indianapolis, Indiana. In this capacity I have primary responsibility for enforcement of the Surface Mining Control and Reclamation Act of 1977 in a six state region which includes the states of Indiana, Illinois, Ohio, Minnesota, Michigan and Wisconsin. My responsibilities include the monitoring of State activities related to the Act.

(2) My monitoring of such activities in the State of Indiana indicates that no application for a surface mining permit has been rejected by the state regulatory authority because the applicant could not comply with prime farmland requirements of the Act.

(3) Further, the state regulatory authority has made required determinations concerning prime farmland under the Act based upon submissions of the surface mining industry.

(4) This information indicates that industry can, and, in fact, has demonstrated the technological capability to restore prime farmland as required by the Act and that the State can, and in fact, has made determinations, as to the adequacy of such demonstrations.

(5) A review of data published by the Indiana Employment Security Division suggest a consistent rise in average employment in the Indiana mining industry from 1971 through 1978.*

---

* The employment data includes employees in all mining industries in Indiana, not only surface coal mining. However, permits for surface coal mining in Indiana is at an all time high; therefore it is reasonable to assume that employment in the coal industry increased.

(6) Indiana has total estimated coal reserves of 30,237,865,000 tons. It is estimated that 17,457,984,000 tons of the total estimated reserves are recoverable by present technology.

(7) Of the total recoverable reserves, 2,237,299,000 tons are recoverable by surface mining and 15,220,685,000 tons of Indiana coal are recoverable by deep mining. Consequently, only 14% of Indiana's total recoverable resources can be surface mined.

[Dated: April 16, 1979] /s/ EDGAR A. IMHOFF

EXHIBIT G

AFFIDAVIT OF ELVIN V. WICKLINE

Elvin V. Wickline, being duly sworn, deposes and states:

(1) I am the Assistant State Conservationist for Operations, Soil Conservation Service, United States Department of Agriculture for the State of Indiana. Field offices under my supervision are responsible for reviewing soil restoration plans submitted by coal operators in their permit applications to the state regulatory authorities. In particular, those offices assesses whether or not the plan of restoration is in compliance with the prime farmland provisions of the Surface Mining Control and Reclamation Act of 1977, Section 716.7(*f*)(2) and the interim regulations, 42 Fed. Reg. 62694.

(2) My office has reviewed 66 submissions from the Indiana state regulatory authority, including six submissions from AMAX Coal Company. These submissions demonstrate that the coal operators have the capability to achieve the prime farmland provisions of the Act and regulations. In most cases, the restoration plans indicate that the coal operator intends to segregate the A horizon, B horizons and C horizons, and store the topsoil separately. In some cases it has been demonstrated that mixing the B and C horizons accomplishes a better end result than separating them.

(3) In the State of Indiana the A horizon is between 7 and 14 inches deep. The B horizon is beneath the A horizon and may reach a depth of 40 inches.

[Dated: April 17, 1979] ELVIN V. WICKLINE

EXHIBIT H

AFFIDAVIT OF ALLEN O. PERRY

Allen O. Perry, being duly sworn, deposes and says as follows:

(1) I am the Assistant Regional Director for Technical Services and Research, Office of Surface Mining, Department of the Interior, Indianapolis, Indiana.

(2) I have a B.S. degree in Geology from Indiana University and an M.S. and Ph.D. in Engineering Geology from Purdue University. I am a member of the Society of Mining Engineers of the American Institute of Mining Metallurgical, and Petroleum Engineers, the Geological Society of America, and the Association of Professional Geological Scientists. I am registered as a professional geologist in the State of Delaware. In addition, I am the author of several technical publications regarding surface mining.

(3) Prior to my present position, I was an Environmental Systems Engineer at the Argonne National Laboratory, Argonne, Illinois. Argonne National Laboratory is one of seven national laboratories established for objective scientific research in the environmental, biomedical and physical sciences. The University of Chicago operates the 1700 acre research facility which has 4,400 employees, 1500 of which are professional scientists and engineers. As a research scientist at Argonne, I supervised and conducted research projects to determine the environmental effects of mining and mineral processing. This research necessitated my becoming familiar with the current state of knowledge concerning the adverse effects of surface mining, including studies concerning the effects of surface mining in Indiana.

(4) Surface mining practices have led to substantial degradation of the environment in Indiana, especially in the area of water quality where such practices have rendered the water supplies in some of the major water-

sheds essentially unsuitable for aquatic life, wildlife, drinking water and even for irrigation purposes. The adverse environmental effects of surface mining, particularly water quality, have been documented in a report done pursuant to Section 208 of the Federal Water Pollution Control Act of 1972, amended.

(5) The degree of degradation is evident from the substantial amount of abandoned mine lands in the state. A study conducted by the Soil Conservation Service, United States Department of Agriculture in 1978, identified in Indiana, some 25,900 acres of abandoned coal mine lands. These lands continue substantial degradation to the quality of the environment, prevent or damage the beneficial use of the land and water resources, and in some cases endanger the health and safety of the public. They are lands for which no coal operator is responsible.

(6) Further, many scientific studies, including some conducted by Indiana state agencies, demonstrate that surface mining has had a deleterious effect on the land and water of the State of Indiana. For example, water quality monitoring data by the Indiana State Board of Health in 1976 showed a substantial increase in the sulfate, iron, and manganese contents of the water when streams were sampled below surface mining operations as compared to samples from above. Increases in the amounts of these substances found by this state agency render the water sampled unsuitable for aquatic life, recreation, both domestic and wildlife, drinking water supplies and irrigation.

(7) A study done by the Water Resources Research Center at Indiana University, Bloomington, which considered the effects of strip mining on the Patoka River Watershed, a major watershed in the coal producing region of Indiana, found that, as a result of surface mining, the water was rendered unsuitable for domestic water supplies because of water quality.

(8) Another study done by the Research Center of another major watershed in the strip mining area, the

Busseron Creek Watershed in Sullivan County, found that the unmined portions of the watershed provide good quality water while acid water emanates from mined areas.

(9) The effects of strip mining on water resources is well stated in still another study by the Water Resources Research Center: "In the production of coal in Southwest Indiana the intermingling of water and coal has created many problems with respect to the occurrence of water, its quality and use. Most of these problems remain unsolved."

(10) Further, where, as in Indiana, there is no requirement for special handling and redistribution of topsoil, there can be severe impacts on reclamation. Lack of topsoiling inhibits revegetation which affects erosion, sedimentation and water quality and quantity.

(11) A list of the studies referred to herein attached.

[Dated: April 17, 1979] /s/ ALLEN O. PERRY

Transcript Of Hearing Held On April 18, 1979[4]

TESTIMONY OF DR. WILLIAM W. McFEE

[Tr. 50]

3 Q. Are you employed by Purdue University?

A. Yes, I am employed at Purdue University in the Agronomy Department.

4 Q. What is your position there?

A. Professor of Agronomy and Director of the Natural Resources and Environmental Science Program in the School of Agriculture.

5 Q. How long have you held that position?

[Tr. 51]

A. I have been assistant associate and full professor combined since 1965, and Director of the NERS Program since 1973, I believe.

6 Q. Would you please briefly describe your educational background?

A. My educational background involves a degree in agronomy from the University of Tennessee, and that's a Bachelor of Science Degree, and a Master's and PhD in soil science from Cornell University.

7 Q. When did you attain your PhD Degree?

A. I attained my PhD, finished the work in '65 and the degree was awarded in January, '66.

8 Q. Could you also please describe your employment history from the college level?

A. Starting from the Bachelor of Science work, after completing that I worked for the experimental station, University of Tennessee, for a period of approximately six months in tree nutrition research, and then I was employed by the U.S. Army for three years, and then while in graduate school I was on an assistantship part of the time and a fellowship part of the time, both of which involved work in soil science having to do with soil fertility, tree nutrition, and,

---

[4] See note 2 *supra*.

perhaps, germane to this, I [Tr. 52] was involved in a peripheral way in some coal reclamation research. It was not the thrust of my particular thesis, but some of the other students which I helped were working on it.

9 Q. Have you had any other connection with research in coal mine reclamation?

A. Yes, I have. I'm writing a final report for a research project, which was funded through the Cooperative States Research Service. And we have another project currently going, both having to do with the ways in which overburdened materials behave and their suitability for inclusion in a reclaimed soil.

• • •

[Tr. 53]

13 Q. Have you made any investigation regarding the restoration of surface mines as a condition for row crop production under that new act?

A. As I understand the Act, it states that in order to be given a permit for mining prime farmlands, you must demonstrate that you can return it to its former productivity. And, yes, I have done a literature review looking for evidence that this has been demonstrated.

• • •

16 Q. Now, I believe you indicated that you made a search of the literature?

A. Yes, I have made a search of the literature looking [Tr. 54] to see if this has been demonstrated in the process of preparing research proposals.

17 Q. Could you describe, please, how you conducted that search and what items you have reviewed?

A. I began by looking at literature that I had in my own possession, which amounted to a few dozen articles perhaps. Then I went to published bibliographies, and I believe the last one of those was published in '76, but there were four of those, and they referenced in abstract something over a thousand articles having to do with coal mine reclamation. Since

that time, I have looked through the journals I considered most probable to publish this sort of information, such as the *Soil Science Society of America Journal* and the *Soil Conservation Journal* and *General Environment* and several others, and then I asked for a search of the CRIS System.

18 Q. Could you explain what CRIS is?

A. I'm trying to think what the acronym stands for right now, but it's essentially the Department of Agriculture's archives of ongoing research. They compile abstracts—correction—progress reports of ongoing research from the state experiment stations, 50 something of those, the U.S. Forestry **[Tr. 55]** Service experiment stations and several other federal cooperating agencies. The archives—I have forgotten the number, but several thousand reports of current research, and I asked for key words and titles having to do with the reclamation of mine land for agricultural use and received, just within the last two months, the results of that search and it gave me a hundred twenty reports, I believe it was, having to do with the fairly liberal interpretation of those having to do with reclamation of mine land for agricultural uses that are currently going on or have been recently—that the final report has not been filed on, so it would still be in the system.

19 Q. Is the CRIS System the Current Research Information System?

A. Yes, the Current Research Information System.

20 Q. Is that a computer base type system?

A. Yes, it is stored—computer base storage, as I understand it.

21 Q. Could you explain, please, what the results of the review of this literature is, as far as specific literature relating to this area of reclamation of mine lands?

[Tr. 56]

A. I found, even though this was a tremendous volume of literature having to do with the reclama-

tion of coal mine land, that very few of the published results dealt with returning it to intensive agriculture, which I would define in this case as row crop agriculture, as far as the Midwest is concerned. There were only a few articles dealing with that, and none of them demonstrated that you could return it to the former productivity that they had—I should put it this way: None of them demonstrated that they had returned it to the former productivity.

22 Q. Is there any differentiation between the levels of management involved in making that return or in the analysis of productivity?

A. Yes. The surface reclamation—or the law which we are talking about deals with returning it to a productivity under a high level of management, and a high level of management, of course, is difficult to define. But it's usually accepted as being the type of management employed by a certain percentage of the operators in that area. And if you use that criteria, none of these research studies which dealt with row crop agriculture in the Midwest were able to get the yield back up, or at least they have not **[Tr. 57]** recorded these results that I could find where the yields have been returned to the levels—

* * *

24 Q. Did you find any such reports relating to mined farmland in the Midwest where there has been a return to row crops, such as corn or soybeans, at levels comparable prior to the mining?

A. A research project currently underway in Illinois that is directed by Professor Jansen is approaching this problem. The yield results, so far, have not approached the kind of levels that you would expect on those soils in the unmined condition.

And the work of Dr. Henning in Iowa has a few soybean yields that are coming probably within 70 or 80% of the productivity potential of unmined soils.

[Tr. 58]

And the report by Mr. Grandt that was published in the *Soil Conservation Society Journal* indicates that their corn and soybean yields were coming close or reaching the kinds of yields that might be expected under a basic level or a common level of management, but were falling short of the high level of management yield.

• • •

26 Q. Have you found anything in the literature that you have searched that shows specifically or that indicates that you can return any farmland to a hundred percent of former productivity or to demonstrate how that can be done?

[Tr. 59]

A. I have not found any literature that shows that it has been demonstrated.

• • •

[Tr. 60]

31 Q. Have you found anything in the literature that you have reviewed that shows that in practice it is possible to return levels to a hundred percent productivity using high levels of management?

A. No.

• • •

[Tr. 61]

35 Q. What type of productivity differential is involved, let's say, on the average, if that is possible, between basic level of management and high level of management?

A. I could not be precise, but I would—my opinion would be that we are dealing with something like 20 to 30% in the case of corn and soybeans.

36 Q. So that if one is required to return to prior levels of productivity under high levels of management, as opposed to productivity under basic levels of management, there could be almost, in an abstract case, a 30% differential in terms of the two requirements?

A. Yes.

TESTIMONY OF ALTEN F. GRANDT

[Tr. 71]

5 Q. What is your educational background?

A. I have a Bachelor of Science Degree from the College of Agriculture, University of Illinois, and a Master of Science Degree in agronomy from the University of Illinois.

6 Q. How long have you been working in the area of reclamation, sir, with respect to surface mined coal lands?

[Tr. 72]

A. I started in 1947.

• • •

8 Q. As a part of your responsibilities as Director of Reclamation for Peabody Coal Company, is it a part of your responsibilities to keep abreast of and to have knowledge of studies and other data that may concern levels of productivity that can be achieved on reclaimed surface coal mine land?

A. It is.

9 Q. And as a part of your responsibility, sir, have you, yourself, directed or taken part in any studies or experiments concerning the subject of productivity, agriculture productivity on reclaimed surface mine land?

A. I have.

• • •

11 Q. Have you written articles that were published in journals, so to speak, concerning the subject of productivity on reclaimed surface coal mine lands, sir?

[Tr. 73]

A. I have.

12 Q. And are you aware that some of these articles that you have written have been filed with the Court and attached to affidavits filed by the defendants in this case?

A. I am.

13 Q. And are you the Al Grandt who is the author of those articles?

A. Yes, sir.

14 Q. With respect to the two articles which you wrote, and which are attached and filed with the Court, and which are identified as Reference 3 and Reference 5, is there anything within these articles and the experiments or studies on which you were writing these articles that would demonstrate that productivity on surface mined land can be achieved under equal levels of productivity as that before it was mined, in the instance of prime farmland, to the extent of high levels of management?

A. No.

• • •

[Tr. 74]

17 Q. In regard to the experiments and studies on which you were writing in Reference 3 and Reference 5, sir, could you explain to the Court what the highest level of productivities that were achieved on reclaimed surface mine land, differentiating it between basic levels of management and high levels of management?

A. In the Knox County study the yields achieved, using topsoil on graded cast overburden was approximately 120 bushels per acre, while the yields—and by the way, that was primarily Muscatine silt loam—and the yields that would be obtained under high levels of management, as reported in the old circular, Circular 1016, I believe—I can't find my immediate reference—yes, Illinois Circular 1016, the Muscatine silt loam on high basic levels of management was 135 bushels per acre.

• • •

[Tr. 76]

26 Q. And is there any of that data that would indicate—that is, from Dr. Jansen's study in Illinois, that would indicate that equal levels of productivity on

surface mined to prime farmland can be attained under high levels of management? When I say equal, equal to that as before the surface mining.

A. It has not been.

27 Q. Are you familiar with the data that has—or is incorporated within the North Dakota study, on which two articles were included in the defendants' submittals that referred to Reference 4 and 6?

A. I am familiar with these articles, yes, sir.

28 Q. And is there anything within the data published in these articles which would indicate that equal levels of productivity on farmland can be obtained in reclamation when it's considered under high levels [Tr. 77] of management?

A. Not in corn and soybeans. Those studies did not study those two crops.

29 Q. With regard to wheat, sir, is there anything that was published with respect to the Great Plains study, authored under J.F. Tars, that indicated that productivity under high levels of management could be obtained?

A. The data does not show what the yields were compared against.

30 Q. Now, with respect to productivity gained under high levels of management and productivity levels gained under basic levels of management, could you give the Court some examples of what the difference in levels of productivity under those two levels of management could be under the data published to date with respect to basic levels of management and high levels of management?

A. I have with me the new Illinois circular, "Soil Productivity in Illinois." It's a new one, 1156. So, in effect, it has updated the circular 1016 that I used earlier. This was published in '78, April of '78.

31 Q. All right.

[Tr. 78]

A. For example, under Muscatine silt loam that we were working—

32 Q. That's a soil type?

A. Muscatine silt loam is a soil type that we were working with in Illinois. The yields under basic levels of management are 104 bushels per acre. I'm talking of corn. While the yields under high levels of management are now 167. As I stated earlier, in the old circular high yield was 145 bushels per acre.

33 Q. Does that type of differential, maybe not exactly the same differential, but is that a typical example of the productivity differential that they are talking about when they differentiate between basic level of management productivity and high levels of management productivity?

A. It's very similar. I could take a soil in southern Illinois; basic level of management, 63; high level of management, 115. Again, 40-plus bushels per acre difference.

34 Q. With respect to Paragraph 7 of Exhibit A, that being Defendants' Exhibit, sir, you have had an opportunity to review that with respect to the conclusions that the author of this affidavit attributes to you?

A. Yes, sir.

[Tr. 79]

35 Q. I would like to review those. Do you have a copy of that with you?

A. Yes, sir.

36 Q. Referring specifically to Paragraph 7, where it is contended that among those researchers as you, Alten F. Grandt, Director of Reclamation, Peabody Coal Company, who is reviewing research and after conducting studies has concluded, A, corn and soybeans can unquestionably be grown on land that has been strip mined for coal, would you say that is your conclusion, based on your studies?

A. I believe that, yes, sir.

37 Q. Is that conclusion in any way to state that corn and soybeans can be grown on reclaimed land and achieve levels of productivity under high management levels?

A. No, sir.

38 Q. The conclusion B, then, attributed to you: "Mined lands can be returned to a high level of agricultural productivity." In your mind, sir, or in your use of the terms "high levels of productivity," is high level of productivity equal to productivity under high levels of management?

A. Not exactly. There is a difference.

39 Q. And in your opinion, sir, would high levels of **[Tr. 80]** productivity be equivalent to, say, levels of productivity that could be obtained under basic levels of management?

A. They're pretty good. I would say they were high in normal layman's language.

40 Q. So when we talk about under high levels of management or basic levels of management, we are really talking about a scientific term within the agricultural community?

A. Yes, sir.

41 Q. And with respect to the conclusions stated here in land can be returned to equal or higher levels of productivity after mining, sir, does that state anything with respect to whether equal levels of yield under high levels of management can be obtained?

A. No, sir, not to me.

42 Q. And it doesn't even state anything with respect to what level of management you are going to compare it to, equivalent or otherwise?

A. No, sir.

43 Q. Now, sir, you have previously testified it's your responsibility for knowledge as to studies concerning this subject matter of levels of productivity that can be obtained after surface mining. Do you know **[Tr. 81]** of any study or any data, sir, or any scientific literature that would support or at the present time there is sufficient technology about which prime farmland can be surface mined, then reclaimed and productivity levels achieved under high levels of management equal to that which was there before it was surface mined?

A. No, sir.

• • •

Cross-Examination

• • •

[Tr. 84]

70 Q. I would like to direct your attention to the so-called Knox County study.

A. Yes, sir.

71 Q. Do you have a copy?

A. Yes, sir.

72 Q. Was this a three-year field study in Knox County, Illinois?

[Tr. 85]

A. This is a report of three years. I have the fourth—1978, we also did it, so there are four years of data available.

73 Q. In your field study in Knox County, did you replace topsoil on an area that had been mined?

A. Yes, sir.

74 Q. Did you study yields on the kinds of soils that had existed on the site prior to mining?

A. Yes, sir.

75 Q. Did you compare the yields on the original soils with yields on mined areas that had been topsoiled?

A. Yes, sir.

76 Q. And the topsoiled areas would be the A horizon?

A. Yes, sir.

77 Q. Did you also compare the yields of the areas that have been topsoiled with areas in which there had been no topsoil added?

A. Yes, sir.

78 Q. Did the addition of topsoil; that is, the A horizon, to the mined area increase the corn yields over those areas in which topsoil had not been added?

A. It did.

79 Q. In fact, weren't the yields in the topsoiled areas 60% better than the area in which no topsoil had been [Tr. 86] placed?

A. Was that the calculation? I did not calculate that percentage.

80 Q. We did and came up with 60%.
A. All right, yes, sir.

81 Q. Isn't it true that the yields on the topsoiled areas exceeded the yields on the original areas in at least one of the years in the study?
A. It did.

82 Q. Was the experiment in Knox County conducted on prime farmland?
A. Yes, sir.

83 Q. In your opinion, is it technologically feasible to restore prime farmland to its prior productive capacity under good management practices?
A. Under good basic management practices, yes.

• • •

Redirect Examination

84 Q. The difference then being, sir, when you use the term "basic levels of management" versus "high levels of management," is that correct, sir?
A. That's the difference.

[Tr. 87]

85 Q. The former can be done and the latter cannot?
A. Yes, sir, correct.

TESTIMONY OF GLENN L. KAFFENBERGER

[Tr. 93]

Q. By whom are you employed?

A. Amax Coal Company.

Q. And in what position, sir?

A. I'm a Senior Environmental Engineer in the Environmental Engineering Department.

Q. What is the nature and extent of your educational background?

A. I have a BS and an MS in engineering and technology from Southern Illinois University.

Q. As a part of your responsibilities with Amax Coal Company are you generally familiar with the requirements placed upon Amax pursuant to the NPDS System under the Federal Clean Water Act and the State of [Tr. 94] Indiana through the Stream Pollution Control Board?

A. Yes.

Q. And are you generally familiar, sir, with respect to—what shall we say—water pollution control requirements that are being placed upon your company by the 1977 Surface Mining Act and the regulations?

A. Yes.

Q. And is it part of your responsibilities to direct the company's activities in this area, insofar as compliance?

A. Yes.

Q. With respect to the elements that can be found in water that have been defined as, let's say, pollutants under the NPDS System and under the Surface Mining Act and the regulations, sir, do you know what those are?

A. Yes.

Q. And what are they?

A. The chemical constituents which are defined as pollutants under the NPDS System and the USM (sic) regulations are for alkaline waters, pH total iron and total suspended solids. For acid and ferruginous drainage, pH total iron, total manganese and total suspended solids.

[Tr. 95]

11 Q. Now, with respect to these pollutants, sir, does the separate removal, segregation and replacement of the A horizon, or the topsoil, the B and C horizon have any beneficial effects, insofar as lowering levels of these pollutants?

A. No.

• • •

[Tr. 96]

16 Q. In terms of contribution to the sedimentation in the streams of Indiana, is agriculture or agricultural activities, in your opinion, one of the high contributors of sedimentation?

A. In my opinion, they are, yes.

17 Q. And in terms of agricultural activities, would row cropping actually increase sedimentation as opposed to an agricultural activity that was, say, not for row cropping, like pasturing?

A. Yes.

18 Q. In regard to the 1977 Surface Mining Act and what some have referred to as non-point source discharges, in the aspects of the Act that might relate to that and water pollution from point discharges, how is that handled operationally?

A. I'm not sure I understand the question.

19 Q. What are sediment ponds and treating ponds for?

A. Under the Surface Mining Act all drainage from what they call affected area has to be passed through a settling basin.

20 Q. Settling basin, there we go.

[Tr. 97]

A. Okay. This is essentially non-point source runoff. Under the NPDS System and the effluent guidelines promulgated under Section 301 of that Act, we are responsible for meeting an effluent limitation from a point source discharge.

21 Q. And the effluent limitations were with respect to the pollutant you have previously talked about, is that correct?

A. That's true.

22 Q. And the 1977 Act and regulations have identified the same pollutants, insofar as what you have to —or what you are limited to once you collect them in the settling ponds and treating ponds, is that correct?

A. Yes.

23 Q. In your opinion, sir, is the return to original contour requirements of the 1977 Surface Mining Act in any way related to beneficial effects upon water pollutants like you have described?

A. No.

* * *

Cross-Examination

24 Q. Mr. Kaffenberger, will you please indicate for us your college and post-college educational experience?

[Tr. 98]

A. Post?

25 Q. Your college and any educational experience thereafter.

A. Okay. I have a Bachelor Degree, as I said before.

26 Q. In what field?

A. Engineering.

27 Q. What type of engineering?

A. Mechanical engineering.

28 Q. Mechanical engineering?

A. Yes. I have a Master's Degree on what is termed transfer and rate processes.

29 Q. Could you explain that in layman's terms?

A. Transfer and rate processes is essentially chemical engineering without a lot of chemistry background.

30 Q. Do you have any further degrees?

A. I have some post-graduate work in fluid mechanics.

31 Q. Do you have any degrees in hydrology?

A. No.

TESTIMONY OF RONALD L. LEWIS

[Tr. 101]

4 Q. What is the nature of your employment with John T. Boyd Company?

A. John T. Boyd Company itself is a mining engineering consulting firm, and my present position with the company is that of vice president.

5 Q. And in your work with John T. Boyd and in your position, sir, what do you do, generally speaking?

A. John T. Boyd Company itself handles all aspects of mining engineering from co-exploration, mine planning, reserve estimations, economic analyses, coal contract [Tr. 102] reviews. My particular area of expertise within the company is primarily coal reserves, mining recoveries and appraisal of coal lands. I also get involved with numerous other types of projects, including contract review and marketing type analyses.

6 Q. What is your educational background?

A. I have a Bachelor of Science Degree in civil engineering from the University of Pittsburgh. I received that in 1971. My professional registration in mining engineering is in the States of Kentucky, Pennsylvania, Ohio and West Virginia.

7 Q. In your position, sir, do you get into analysis of long-term coal contracts for utilities?

A. Yes, as a part of our services we do offer that.

8 Q. And that service, what does it encompass, so far as analyzing long-term coal contracts for utilities?

A. Essentially what it is, we will review a specific coal company, as far as reserves they would have, their experience in mining, their overall reliability, fiscal assets, their transportation system and generally just an overview of the entire operation, and we would state an opinion if we felt that company would be qualified or not qualified to produce a reliable source of coal under the contract terms.

[Tr. 103]

9 Q. You review the economics of the contract, so to speak?

A. Yes.

• • •

[Tr. 105]

16 Q. Have you made an examination to attempt to determine, sir, the cost per million BTU of deep surface mined coal in Illinois and per million BTU of surface coal mined in the State of Indiana?

A. Yes. Using the published shipments of coal and delivered costs, I have compared the delivered cost of Illinois deep coal to plants in Indiana and also similar shipments of coal from Indiana surface mines to plants in Indiana.

• • •

[Tr. 106]

21 Q. Now, based on the assumed increased costs that you made, as demonstrated through Mr. Meschke's affidavit, sir, what is the comparative cost, delivered cost of coal per million BTU's of surface mined coal in [Tr. 107] the State of Indiana?

A. On the exhibit itself there is actually several categories of stripped coal. You take the Indiana strip coal, which is under the long-term contract, which in definition for this purpose is coal contracts which will not expire in the next two years, the adjusted price would be $1.07 per million BTU.

• • •

[Tr. 109]

35 Q. To contrast the cost per million BTU delivered of surface mined Indiana coal, how does that contrast to the delivered cost per million BTU of Illinois underground mined coal?

[Tr. 110]

A. When you look at the comparison from the very top entry, deep coal contracts, you see that the delivered cost of Illinois deep coal averaged $1 and .079 Dollars per million BTU. This is versus the ad-

justed cost of the stripped coal of $1.07. Essentially what we are saying is just taking into account the compliance cost of prime farmland, the two coal sources are approximately equal.

36 Q. Is there a manner to determine, based on generally accepted published figures that are relied on by the coal industry and even the utility industry to determine prospective or presently planned development of coal steam-fired generators that might be producing a future demand for coal, let's say, within the State of Indiana?

A. Yes, sir. The source publication is entitled "Status of Coal Supply Contracts for a New Electric Generating Unit, 1977 to 1976," and it's dated May, 1978, and it's put out by the U.S. Department of Energy.

37 Q. And based on that, can you also determine as to these proposed new sources whether or not contracts, long-term contracts have been entered into and the actual source of the long-term contracts, in terms of what state it's in, whether it's surface mined coal or [Tr. 111] underground mined coal?

A. Yes, you can get the source of the coal by states. They do not give you the breakdown, surface or deep.

• • •

[Tr. 112]

43 Q. Is there also a source to determine the presently planned deep mines in the State of Indiana and surface mines in the State of Indiana—presently planned development of surface mines and deep mines in the State of Indiana and in the State of Illinois?

A. Yes, there is an article which appeared in *Keystone News Bulletin*, January, 1979, entitled "Keystone Predicts Rapid Expansion," and in it it's a survey of operating companies and their reported plans to either expand or develop new mines between 1978 to 1987.

44 Q. How many deep mines are planned for development in Indiana, according to that publication, sir?

A. The only deep mine showing on the tabular summary for Indiana is the Spur Mine of Peabody, and it is shown because it's anticipated that the capacity will expand from 400,000 to 500,000 tons in 1978, and that is the only entry for deep mines.

• • •

[Tr. 113]

46 Q. Do the economic figures showing the lack of deep mined coal, or coal in Indiana that is actually being deep mined, as contrasted to the amount of coal that is actually being deep mined in the State of Illinois, at this time have any meaning or import as to the mineability of the Indiana underground reserves?

A. Yes. As stated in an affidavit by Mr. Kester of Amax, which I reviewed, which indicates that the overall mineability of Indiana coals are not as favorable as Illinois deep coals, which I concur with that opinion. It's also verified by the fact that looking at the tabular summary of new projected deep mine development in Indiana, virtually there is none anticipated in the next 10 years. When you look historically at the production currently and past experience in recent years, again virtually it's very limited, essentially one mine.

47 Q. In your opinion, sir, if the surface mining industry in Indiana is displaced for whatever reason, would it be reasonable, based on your knowledge of the economic conditions and the geological conditions, to assume that if mining had to go underground or by [Tr. 114] the deep mining effort, that it would first do that in Illinois rather than the State of Indiana?

A. Yes, sir, that is my opinion.

48 Q. Now, sir, based upon the assumptions that you used as gained from Mr. Meschke's affidavit, I believe being Exhibit 9, as contrasted to the present delivered cost per million BTU of surface mined coal in Indiana versus underground mined coal in Indiana (sic), do you have an opinion as to whether this cost increase or cost differential in terms of soil handling has the po-

tential to displace the surface mining industry within the State of Indiana?

A. Yes, I believe that the potential is there to have a significant portion of the Indiana production being displaced and replaced by Illinois deep coal. And I think that that is confirmed again by the new coal mine development report by the exhibit which was entered showing the review of new coal-fired units, which is showing that the future coal source for the State of Indiana is going to be primarily from other states, and, in fact, in 1981 it's estimated that 28% of the new coal required will come from Indiana and 29% from Illinois. Now, when you compare that to the current distribution of the coals, you will **[Tr. 115]** see that at present the Indiana coal industry is supplying 50 to 60% of the total coal burned by electrical utilities in the State. So that the overall impact, even on the figures put out by the Department of Energy, is certainly showing that the coal industry of Indiana is vulnerable.

* * *

[Tr. 116]

52 Q. Mr. Lewis, I believe you indicated that if mining goes underground, it would first do so in Illinois and not in Indiana?

A. Yes, sir, I think that the past experience has certainly shown that to be the case, and when you look at the planned mines scheduled for expansion or new mine development, out of the ones planned for Illinois there are 21 deep mines, 9 surface mines. When you look at the contrasting figures to Indiana, there is one deep mine, which will be expanded, and 8 surface mines, and when you look at the estimated capacity of full operation, you are looking at in excess of 55 million tons of new capacity coming from Illinois, as contrasted to 18.1 for Indiana.

53 Q. And this would effectively supplement or supplant the surface mining industry in Indiana?

A. In my opinion it certainly has the potential to do that.

TESTIMONY OF ELVIN V. WICKLINE

[Tr. 125]

3 Q. And you have signed an affidavit on behalf of the federal government in this case, have you not, sir?

A. Yes, sir.

4 Q. And in that affidavit you talk about your having reviewed—strike that.

[Tr. 126]

What is your employment sir?

A. I work for the Soil Conservation Service, U.S. Department of Agriculture.

5 Q. And in that position the applications for surface mining permits in Indiana are submitted to your offices for review, is that correct, sir?

A. They are submitted to the county field offices.

6 Q. You mention in here that six submissions have been made by Amax Coal Company, and that's in addition to 66 submissions, and I'm assuming you are talking about submissions consisting of applications for surface mining permits?

A. Well, it's a total of 66.

7 Q. Okay. You state that these submissions demonstrate that the coal operators have the capability to achieve the prime farmland provisions of the Act and regulations. In regard to the six submissions of Amax Coal Company, sir, do you know for a fact whether or not those submissions had to do with grandfathered prime farmland or prime farmland that had to comply with the separation of the A, B and C horizons?

A. I don't know exactly on that, but I would presume that they were permits under the new law. Now, I don't know the definite answer to it, but I would [Tr. 127] presume that all we are getting for review and comment are those that come under the new law.

• • •

9 Q. So you actually have no firsthand personal knowledge whether the submissions of Amax were with respect to grandfathered prime farmland or non-grandfathered?

A. I have not.

10 Q. With regard to the submissions, sir, is it fair to assume that as long as an applicant is demonstrating that he will separately remove, segregate and replace the A horizon, B horizon, C horizon, that that means to you that he has sufficient capability or technology to achieve the prime farmland provisions of the Act and regulations?

A. Based upon what he submits in his plan, we make a judgment decision there. In most cases I don't think we have turned down anything that the operator says he can do. We do not question if he has got reasonable [Tr. 128] machinery to do the work with.

11 Q. So long as the operator says he is going to use reasonable machinery and is going to segregate the C horizon and B horizon, you have required nothing more?

A. Basically there are certain other things we do. There is an eight-point checklist that we have and we ask our people to address themselves to when they are reviewing a permit.

• • •

15 Q. I see. I'll hand you what has been marked as Exhibit 40 and ask you if that sets forth the eight points you just talked about, which if they were affirmatively shown in the permit, you would then find that the operator could comply with the prime [Tr. 129] farmland regulations?

A. In our opinion, as an agency, yes.

16 Q. I see. Do you have any knowledge as to the basis on which that determination was made?

A. These eight points?

17 Q. Yes.

A. They were developed by a special team of our staff using the rules and regulations and guidelines from our Lincoln office.

18 Q. Do you have any personal knowledge, sir, whether there are any scientific studies that have demonstrated that prime farmland can be surface mined and reclaimed to the extent of achieving equal levels of productivity under high levels of management?

A. No, sir, I do not.

TESTIMONY OF DONALD E. McCORMACK

[Tr. 136]

1 Q. Mr. McCormack, what is your present position?

[Tr. 137]

A. Director of Soil Survey Interpretations Division in the Washington office of the Soil Conservation Service.

2 Q. How long have you been in that position?

A. About two years and a half.

3 Q. What are your responsibilities?

A. I furnish national leadership to a program of the use of soil surveys in determining the use and management of land, to interpret the properties of soils in terms of those kinds of considerations about the use and management of land, so that that soil will achieve stated objectives.

• • •

[Tr. 138]

7 Q. What is your educational background, Mr. McCormack, beginning with college?

A. I got a Bachelor of Science from the University of [Tr. 139] Illinois in agricultural science, majoring in soils, in 1953. In 1960 a Master of Science in soil science, and then in 1973 a PhD at Ohio State University in soil science.

8 Q. Are you a member of any professional societies?

A. Yes, sir. I'm a member of the Soil Conservation Society of America, the American Society of Agronomy, the Soil Science Society of America, and the International Society of Soil Science.

9 Q. Have you authored or co-authored any articles dealing with soils?

A. Yes, sir.

10 Q. Approximately how many?

A. About 20 to 25.

11 Q. Have you also read literature in the field of soil reconstruction?

A. Yes, sir.

12 Q. Have you had any occasion to examine surface coal mining operations?

A. Yes, on many occasions, and over a period of —well, as I mentioned to you, 1953 was the first occasion, but then particularly in Ohio, in the responsibility I had in the soil survey there, I was a member of the Board of Review in Ohio for surface mining and **[Tr. 140]** accompanied a team of people in the mid-1960s who visited mining operations in the field in Ohio and considered the extent to which reclamation of those areas met the requirements of the law and met objectives that had been set by the State of Ohio. During the same time I was a member of the Soil Conservation Society of America's committee on surface mine reclamation, and in connection with that committee activity was on field trips that included a trip to Indiana and a trip to Illinois in the mid-1960s.

• • •

[Tr. 141]

18 Q. After a soil survey has been conducted, is it appropriate to say that the soil can be divided into three horizons?

A. In general that is true, yes.

19 Q. What are those three horizons?

A. The A, B and C horizons.

[Tr. 142]

20 Q. Please describe the characteristics of the A horizon.

A. The A horizon is the surface horizon. It's the horizon that accumulates the organic residues from the native plants that grow on the soil, and, therefore, it's higher in organic matter than the other soil layers. As a result of the higher organic matter it commonly has a higher capacity to store water. The water capacity is higher than other soil horizons, and also it has favorable structure that results from the organic matter, and that favorable structure results

in better workability. It's easier to prepare a good seed bed on the A horizon than on others.

21 Q. How would you describe the B horizon?

A. The B horizon commonly fits between the A and C horizon, and is a horizon of accumulation of clay, in some cases of nitrates or of sodium and other chemicals, but it is basically a horizon of accumulation that has lower organic matter content than the A horizon.

22 Q. And in your opinion, it is technologically feasible to restore prime farmland to its prime productive capability under good management practices?

A. Yes, sir, it definitely is.

• • •

Cross-Examination

[Tr. 143]

29 Q. Could you contrast for me, if you would, please, Mr. McCormack, a basic level of management, as used within the field of agronomy, a good level of management and a high level of management? I noticed the **[Tr. 144]** question was asked to you based upon a good level of management.

A. That's correct.

30 Q. And I have heard high level of management and I have heard a basic level of management, and if you could explain the three.

A. Let me say first that the application of these kind of terms has been very provincial in the United States. And in the Soil Conservation Service we have established definitions of average and high levels of management which are used in soil survey interpretation sheets that are in computer storage at Ames, Iowa. I have learned there is a term of basic management level that has been used in the Illinois bulletin that has previously been referred to, and I can't describe for you exactly what that definition of basic level of management is in that bulletin.

31 Q. Well, if I understand, you are not sure what basic means, is that right, as compared to average?

A. The term "basic management level" is not a term that has been defined nationally for national application, and to the best of my knowledge, the term has been used in Illinois. Now, I'm frankly not familiar with the use of that term and the specific definition for [Tr. 145] that term outside of the State of Illinois.

32 Q. Would average levels of management give rise to—well, let me ask you this: In this computer thing you have over in—wherever it is—

A. Iowa State University.

33 Q. They use the term average level of management?

A. That's correct.

34 Q. And high level of management?

A. That's correct.

35 Q. And the question was asked of you, based upon a good level of management. Does that computer use the term "good level of management"?

A. No, sir, it does not.

36 Q. It does not. So that your answer to that question doesn't really have any relevancy to the issue of having to achieve equal levels of productivity under high levels of management?

A. My assumption in responding to the question about good level of management is that, in effect, that would be what an agriculturalist with a general background of crop production would consider to be an appropriate level of management for good yields. Now, this—

37 Q. Excuse me. How does that contrast with this industry [Tr. 146] term called "high level of management"?

A. Beg pardon? The industry?

38 Q. Yes. The Department uses "high level of management," okay?

A. That term.

39 Q. As a term of art, almost, if you will. They put it under high levels of management in your computer and you have productivity. I want to know what good levels of management are in contrast to high levels of management. Is one higher or lower?

A. I think your question probably pertains directly to the reasons for the testimony that I gave, the response that I gave to the question. Can I assume that that is true?

40 Q. I would rather that you answer my question, if you would, please, as opposed to conjecturing on why I'm asking the question.

I guess I don't understand what you mean by good level of management and I don't understand what the Act talks about when it talks about a high level of management and what the regulations talk about when they talk about a high level of management.

A. The high level of management in the Act, to the best of my knowledge, refers to the high level of [Tr. 147] management as defined by the Soil Conservation Service and use in the soil conservation interpretations that appear at Ames, Iowa on the soil survey interpretation sheets.

41 Q. How does that good level of management compare to that, then, sir? Good level as opposed to high level?

A. Well, I frankly think that good level of management has a wide range in kinds of interpretations, depending on who you talk to. That is the reason I gave the answer that I did before relative to the general agricultural application of good management practices.

42 Q. The Act does not use the words "good level of management"?

A. That's correct.

43 Q. Right?

A. That's correct.

44 Q. So his question, then, is not—the question you answered is not the standard of the Act, is that correct, sir?

A. My interpretation and my answer was that it was.

45 Q. Good is equal to high?

A. Yes.

46 Q. Do you know of any studies, sir, that have established—scientific studies by agricultural schools, or

[Tr. 148] by anybody qualified in the industry, that has demonstrated that surface mined land, prime farmland, can be reclaimed and equal levels of productivity gained under high levels of management?

A. As you know, the intent of the Act—

• • •

A. (Continuing)—is to restore the productivity of the land.

47 Q. Could I have a yes or no answer first and then you could explain your answer.

A. I prefer to do it the other way, sir.

• • •

[Tr. 149]

THE COURT: I think you can answer that as to whether you are aware of any studies in that area, Mr. Witness.

THE WITNESS: Let me refer you first to a farm in Somerset County, Pennsylvania, the Calvin Wills farm, where personnel in Soil Conservation Service have informed me that the soil has been restored and that the yields that were obtained prior to mining have been achieved. This man is a good manager and he insisted when his farm was leased that the soil be restored so that he could obtain the same returns from the soil, or better returns than he obtained prior to mining.

Also in the example of the paper from Knox County, Illinois, which Mr. Grandt testified about, the yield on the Muscatine soil was 7900 kilograms per hectare. I believe that yield is over 140 bushels per acre. We might ask Mr. Grandt, but I presume [Tr. 150] that conversion is about right.

MR. GRANDT: One hundred thirty-five.

THE WITNESS: This represents quite a high production from that area. And the yield where the topsoil was returned is essentially the same as the original Muscatine soil in each—the average for the years. In fact, in one of the three years we know that actu-

ally higher yields were obtained where the topsoil was replaced than on the original Muscatine soil. I think that that is a good indication.

Now, in that case also it's true that the B horizon, as Mr. Grandt pointed out, was not restored according to the requirements of the law. It was just placed on the graded cast overburden, as I recall, in the B horizon. But, however, 12 to 15 inches, according to his testimony, of A horizon was restored to the land, and I think with a yield level as high as was obtained there is an indication that high productivity can be restored after mining on prime farmland.

The work I cite is the third example of work in North Dakota, which, in effect, I think demonstrates that on that land, on the wheat land, the [Tr. 151] essential productivity of good wheat land was restored following mining. And I bring this up because of the idea that the intent of the law was to restore—

• • •

48 Q. In the example in Pennsylvania, sir, that you were talking about that you know of, when was that reclamation—or when was the mining on that done?

A. The mining is proceeding progressively. It's a fairly small operation and less than five acres are mined each year, but the restoration is proceeding currently.

49 Q. How long has that been going on?

A. At least five years.

50 Q. What type of crops were grown on this land before mining?

A. It's a livestock and dairy farm, and corn, wheat and clover are the principal crops there.

51 Q. Corn, wheat and clover?

A. Clover hay, yes,

52 Q. What amount of the corn and wheat was marketed for [Tr. 152] non-farm use, do you know?

A. No, sir, I don't have any idea. It's a dairy farm and I think he feeds most of it.

53 Q. So he feeds most of it, I see. Do you have any data available that would tell us what the yields were on that farm prior to the surface mining?

A. No, sir, I don't have that data.

54 Q. Is it available someplace?

A. The local Soil Conservation Service, district conservationist and soil scientist are familiar with the data.

55 Q. I see. But you, sitting here today, have no knowledge of that data?

A. That's correct.

56 Q. Sitting here today, sir, do you have any knowledge of what the data was on the farm after it was mined and reclaimed?

A. No, the report that I have is that the yields are as high or higher within two years after mining on that farm than they were prior to mining.

57 Q. And what report is that, sir?

A. The discussion with the Soil Conservation Service personnel in Pennsylvania.

58 Q. That's what they have told you?

[Tr. 153]

A. That's correct.

59 Q. There has been no published data on this?

A. I believe there has been some publication from this, but I can't tell you where it is.

60 Q. Certainly if you had found it you would have had it in the affidavit?

A. I didn't find it. I didn't look for it, frankly.

61 Q. Now, you stated that the study in Illinois is an indication of capabilities to achieve higher productivity and to return land to essential productivity. Now, so we can get our synonyms straight again, is that synonymous, as in the instance of good levels of management and high levels of management, this high productivity, is that high productivity under high levels of management, average levels of management or good levels of management, as you used the term?

A. I don't recall any reference to "essential," as you are pointing out in the question.

62 Q. Let's use high productivity, sir.

A. I was referring to the general concept that a high level of productivity had been restored after mining, and I think in general a soil scientist and an agronomist and agriculturalist would agree that 135 [Tr. 154] bushels of corn would be high productivity.

63 Q. I guess my question is—

A. The level of management under which that yield was obtained is not described specifically enough in the paper that I referred to by Mr. Grandt for me to say whether it was achieved under high management or not.

64 Q. Okay. The Act, insofar as the target is concerned in the application and the regs, in that regard, require high levels of management, do they not?

A. The reference to high levels of management, yes.

65 Q. And if there was a high level of management on the land before mining and the productivity after mining, one is going to have to demonstrate the technology and capability to achieve the productivity after mining under high levels of management equal to that previous to mining, isn't that correct, sir?

A. In this situation the fact that the original Muscatine soil produced essentially the same yield as the mined soil with topsoil returned and that both of those yields were high, I think is very, very significant. Now, these would be considered high yields by agriculturalists, and specifically I don't know exactly what the yield level of Muscatine would [Tr. 155] be under high level management, but a hundred and thirty-five bushel would approach that.

66 Q. So I guess the high level of productivity is really what you think has been shown? Technology is capable of going to a high level of productivity?

A. I think the technology has been proven that soil properties can be created so that the productivity of land after mining will be restored. I think that was the intent of the law, and I think that has been shown.

67 Q. I see. Without regard to high levels of management?

A. The productivity of the land after mining can be restored because the soil properties required for that productivity can be re-created.

68 Q. Without regard to high levels of management?

A. The productive capacity would be in reference to any level of management; high, medium or whatever. If you put a hundred pounds of nitrogen on the soil that existed prior to mining, you could expect a given kind of result on that soil prior to mining. And if you mined and restored the soil the way that you should, put a hundred pounds of nitrogen on it, you can predict what the response would be because you knew what it would be on the unmined soil. You get **[Tr. 156]** essentially the same properties that create production by careful restoration of the soil properties.

69 Q. And the study that supports that is this experience out in Pennsylvania, which is not Indiana, I take it, and you think you can extrapolate or interpret the study that Mr. Grandt did to say that also?

A. Yes.

70 Q. Those are the two bases on which you are giving this opinion?

A. Well, plus a knowledge of the kind of soil properties that are required to make a productive soil.

71 Q. I see.

A. Which this is no mystery to soil scientists and agronomists.

72 Q. Other than the fact it's never been done except in the instances that you are citing?

A. The soil properties can be created to produce a productive soil, in my opinion.

73 Q. That's your professional opinion?

A. That's correct.

74 Q. And I assume, then, based on your opinion, sir, as long as in a mining application permit one sets forth that they were going to use the proper type of machinery and as long as they were going to segre-

gate [Tr. 157] the A horizon, separately remove the B horizon, the C horizon, that would be a sufficient showing?

A. No, sir.

75 Q. What else would you have to show?

A. Well, one thing, I think you would have to show that the soil properties that would be required for productive soil were re-created after mining. I think the soil handling has been pointed out before in previous testimony. The soil handling by an end loader with a bulldozer or in thick layers to assure the result would be an important consideration, and if there wasn't special provisions for handling the soil, then I think that might be grounds to challenge the capability.

76 Q. What type of special provisions for the handling of this soil do you think should be shown that would show capability of returning the land to prior levels of productivity under the equal levels of management?

A. I think one aspect of special handling would be just simply the plan that would result in the identification of the number of inches of A horizon that would be placed back on the land, how the A horizon would be handled; would it be stockpiled, would it be handled in one operation. Another aspect would be [Tr. 158] that the number of inches of B horizon would be identified and that it would be restored to the site, or if it's to be a mixture of B and C horizon the proper portion of each component that would be placed, how that material would be mixed, how it would be stockpiled, if stockpiling was necessary, how it would be re-graded on the surface, including the kinds of machinery to be used would be important in soil handling consideration.

* * *

[Tr. 159]

80 Q. But assuming, then, the right methodology of taking it off and stockpiling it and using the right type of equipment to replace it, as long as you separately remove and replace the A horizon, B horizon and C horizon, it is your professional opinion that equal levels of productivity under the same levels of management would be achieved on that land after reclamation?

A. Those would be the most important considerations, yes, sir.

• • •

81 Q. Mr. McCormick (sic), in regard to the Wills farm in Pennsylvania, when did you have this discussion with your staff members regarding the yields?

A. 1976.

82 Q. 1976?

A. In fact, it was in preparation for the paper that was published in the *American Mining Journal.*

83 Q. Did you ever have yield figures?

A. No, sir, I don't think specific yield figures were [Tr. 160] referred to.

Respectfully submitted,

WADE H. McCREE, JR.
Solicitor General

JAMES W. MOORMAN
Assistant Attorney General

LOUIS F. CLAIBORNE
Deputy Solicitor General

PETER BUSCEMI
Assistant to the Solicitor General

PETER R. STEENLAND, JR.
MICHAEL A. McCORD
Attorneys
Department of Justice
Washington, D.C. 20530
(202) 633-2217

THEODORE L. SENDAK
Attorney General
State of Indiana
JACK R. O'NEILL
Deputy Attorney General
State of Indiana
219 State House
Indianapolis, Indiana 46204
(317) 232-6357

For State of Indiana, Otis R. Bowen, M.D., Governor, Indiana Department of Natural Resources, and Joseph D. Cloud, Director.

HARRY T. ICE
G. DANIEL KELLEY, JR.
BYRON L. MYERS
111 Monument Circle
Indianapolis, Indiana 46204
(317) 635-1213

For Indiana Coal Association, Meadowlark Farms, Inc., AMAX Coal Company, a Division of AMAX Inc., Peabody Coal Company, and John A. Conlon.